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February 12, 1973

RAILWAY AGE

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Corridor trains for Florida?

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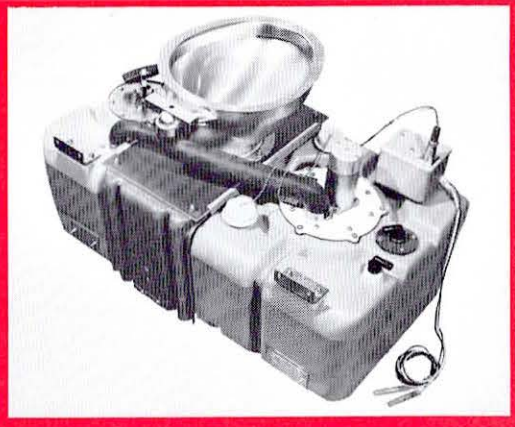

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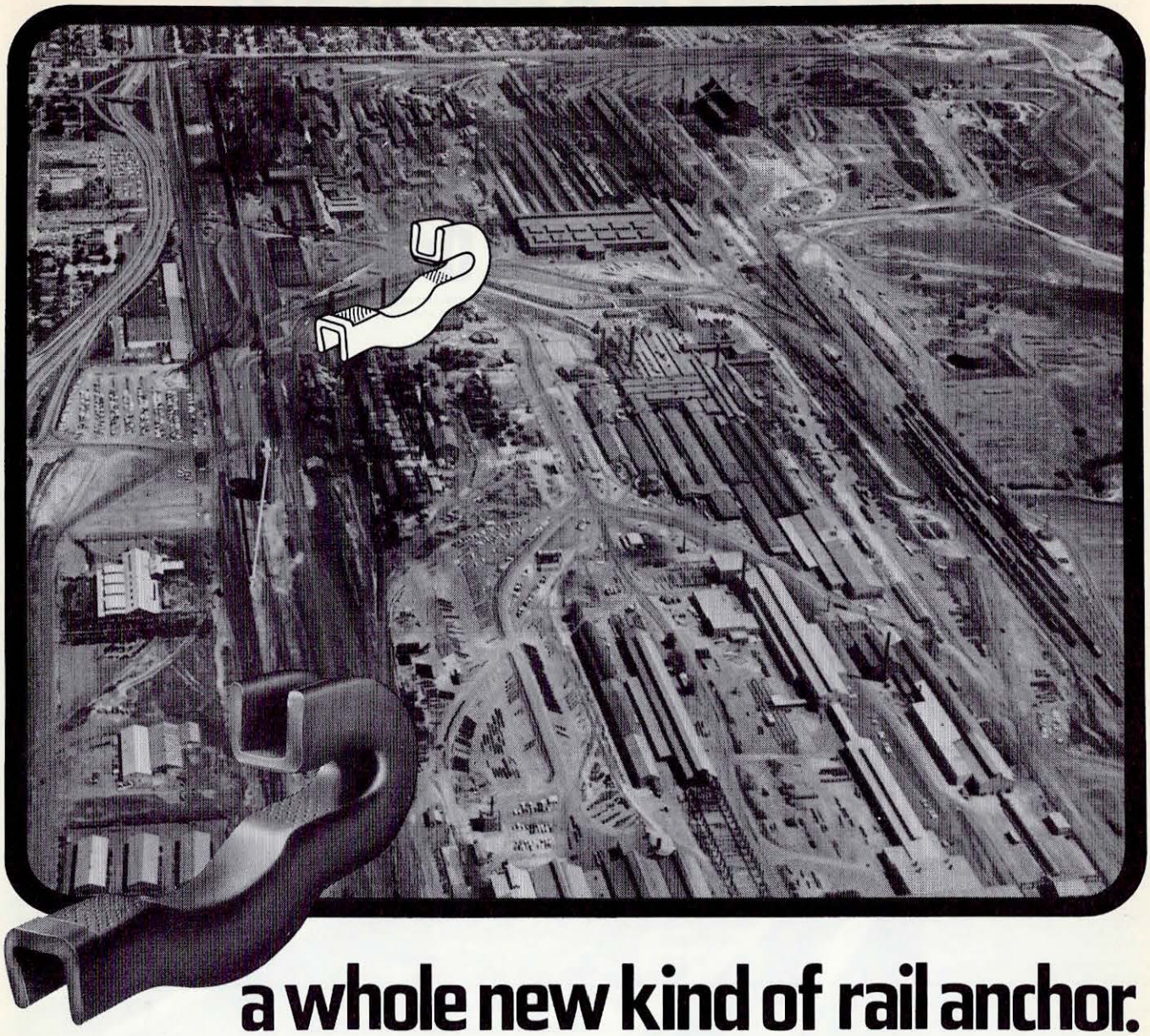

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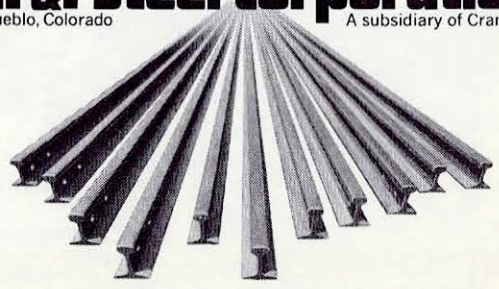

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Inside

LUTHER MILLER

THE PC UPSTAGES THE PM

At noon on Feb. 1, as hundreds of reporters milled in the corridors of the National Press Club in Washington awaiting a much-publicized appearance by British Prime Minister Edward Heath, Penn Central's Bill Lashley walked into the Press Club lobby and stuffed a batch of familiar pink-colored PC press releases into the "flack rack." Knowledgeable reporters quickly sensed that what PC had to say would make far bigger headlines in that night's papers than anything the PM could possibly come up with; at more than one luncheon table, reporters were busily scribbling out their PC copy as Mr. Heath made his speech.

What PC's trustees said was not really unexpected but it was still startling in its scope: PC, said the trustees, needed $600-to-$800 million from the Federal government to achieve reorganization. They went on to describe three ways in which they thought this could be accomplished. A report of the trustees' three recommendations appears on p. 10.

Of the three alternative plans, the trustees said they felt that "private management with the profit incentive of private ownership would be best; private management under an incentive contract with ownership of way and track and structures by a mixed public and private authority or a public authority is next best."

And they emphasized: "Because government ownership *and* operation is a very poor, and unnecessary choice, it is not discussed in this report. World-wide as well as domestic experience in addition to logic dictates this strong conclusion."

A WARNING FROM BRITAIN

By an interesting coincidence, the issue of Forbes magazine dated Feb. 1 carried a report of an interview with David Bowick, chief executive of the British Railway Board, who warned, reported Forbes, that "Americans hot to nationalize the Penn Central had better learn fast from Britain's mistakes."

The trouble begins, Forbes observed, "when the civil servants replace the railroaders at the long-term bargaining table."

Forbes went on to say: "The last time the British government took heed of its railwaymen was when the system embarked in 1955 on the $5-billion modernization program that by the early Sixties made the British rail network a model for the world. At that point the then government began to dictate to the railroad—for example, forcing it to keep fares down as an anti-inflation measure, and designing coaches that knocked the end off station platforms, locomotives whose lack of side windows made the engineer unable to see down the length of his train. . .

"The warning for American railroaders rings loud and clear. If the signal calls for nationalization, make sure you have a powerful lobby. You'll need it as much after nationalization as before."

◀ Circle 4 on coupon page 37

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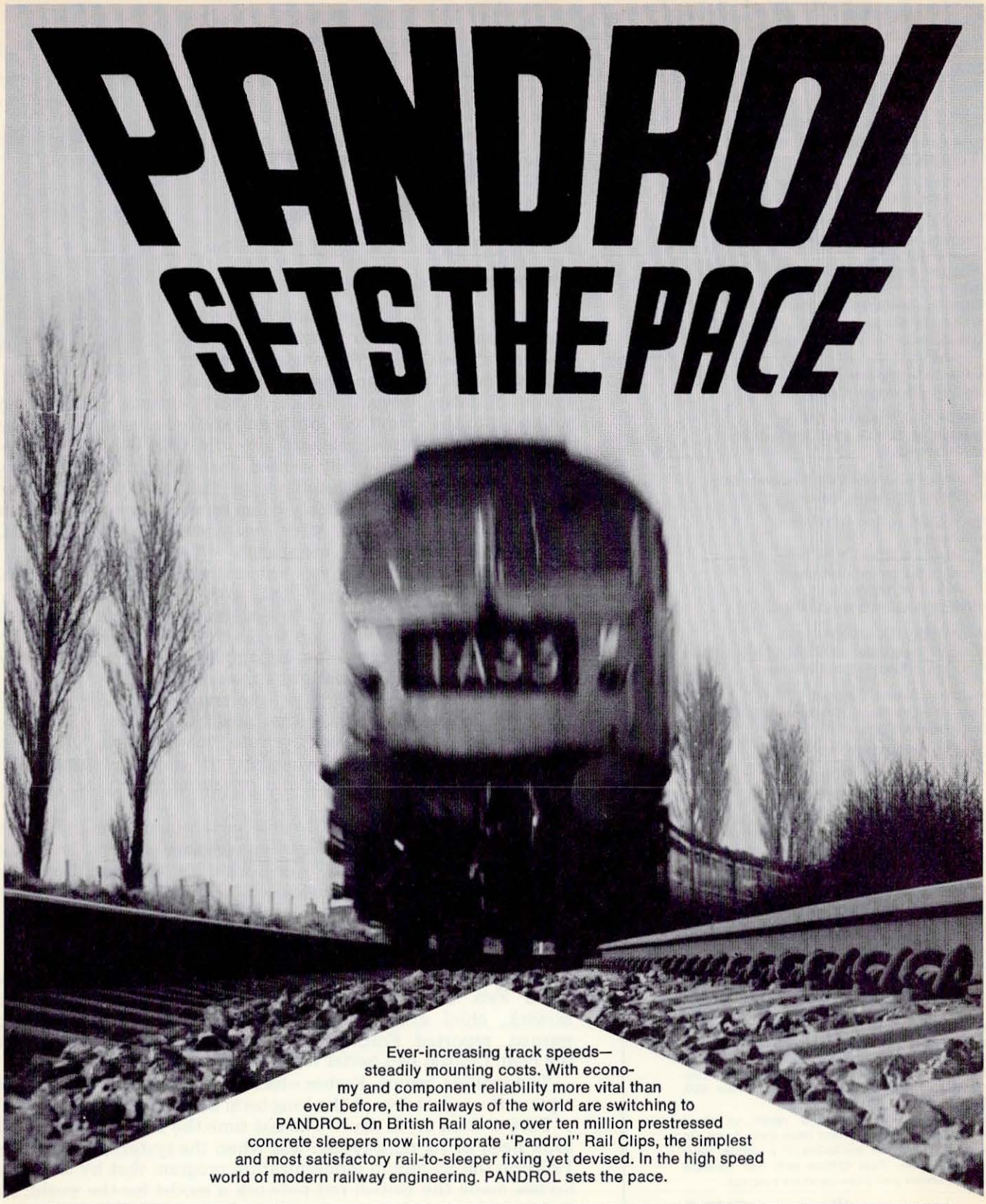

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RAILWAY AGE

FEBRUARY 12, 1973

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The color photo of the ANF-Frangeco turbo-train, similar to those which will go into service in the U.S. next summer, was supplied by **La Vie du Rail.**

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Short and Significant

REED SUCCEEDS MARSH IN SANTA FE POSTS

John S. Reed, president of Santa Fe Industries and president and chief executive officer of Santa Fe Railway, has been elected chairman and chief executive officer of the holding company, effective Feb. 1. He succeeds Ernest S. Marsh, who retired at the end of January. Marsh was elected president of the railroad in 1957 and chairman 10 years later and was named chairman and chief executive officer of Santa Fe Industries when it was formed in 1968. Reed was elected president of the railway in 1967 and president of the parent company in 1968.

BEARING SUPPLIERS FIGHT RISE IN IMPORTS

The Anti-Friction Bearing Manufacturers Association (AFBMA) is asking cancellation of all tariff concessions "in order to save the industry from destruction." An AFBMA spokesman said the action was taken in response to "a flood of ball bearing imports, 88% from Japan." He added that 50% of the small ball bearings used in the U.S. in 1971 were imported, and in 1972 imports rose by another 42%. The request for a tariff adjustment went to the United States Tariff Commission.

RAILWAY TRADE MISSION TO VISIT INDIA

To promote the sale of U.S. railway equipment for a planned $170-million modernization of Indian Railways, a U.S. Department of Commerce trade mission will visit India April 1-14. Representatives of 12 U.S. companies, still to be picked, will visit New Delhi, Vanarasi, Calcutta and Bombay. Inquiries should be addressed to the Bureau of International Commerce, U.S. Department of Commerce, Washington D.C. 20230.

RSA SELECTS SITE, DATES FOR MEETINGS

The Coordinated Mechanical Association-Railway Supply Association annual meeting will be held this year in Chicago's Pick-Congress hotel, Sept. 9-12. This will mark the first time "in about 25 years," according to the RSA, that the annual meeting hasn't been held in the Sherman House, the Chicago landmark which will be razed this year. Meeting dates for subsequent years have also been selected by RSA—in 1974, Sept. 15-18; and in 1975, Sept. 14-17. Exhibits are planned for 1975. No sites for either the meetings or the exhibits have been selected for these two years, RSA reports.

NORTH AMERICAN BRANCHES OUT

North American Car is expanding—both here and abroad. Here, NA has set up a Trailer Leasing Division, which will be providing equipment on a rental basis to transporters of non-perishable freight. And in France, the Flying Tiger Corp. subsidiary has set up NACCO, S.A., which has already arranged lease of $400,000 worth of rolling stock to a French oil company. North American also has an overseas computer-leasing subsidiary, National Equipment Rental, S.A., based in Belgium.

MARKETING "CONTEST" SET

The Marketing Committee of the American Railway Development Association has been holding a number of special marketing workshops—and now the group has a "contest" planned for the annual meeting of ARDA April 29-May 2 in St. Paul. Entries will consist of papers reporting on successful and profitable marketing innovations—the aim being to encourage railroads to share their marketing experiences. D.E. Egertson, director of traffic development for Frisco and chairman of the marketing section, points out that "because the railroads are so interdependent, cooperative marketing is especially vital." In the contest, "emphasis is on profitable innovation and is primarily directed toward developing new traffic or making existing traffic more profitable." Meanwhile, the committee is planning for workshops on grain and the metals industry. Workshops have already been held on forest products, construction materials, food products and the mining industry.

BOB CLAYTOR'S ADVICE: "STANDARDIZE"

Railroads and suppliers still have a long way to go in standardization of equipment, material and supplies. Norfolk & Western Executive Vice President Robert B. Claytor regards this as one of the industry's most pressing problems. Speaking at the annual meeting of the Railroad Automotive Managers Association in Roanoke, Claytor zeroed in on one particular aspect of the problem—standardization in the hi-rail field. The problem, he said, lies in development "of a uniform hi-rail car so that there might be sufficient demand to justify economical production. If we can agree upon specifications which would be acceptable to the industry in general, I think we will have no difficulty finding a manufacturer who will turn out hi-rail units in quantity and at an acceptable price. But first we must agree among ourselves."

N&W PLANS 28-ACRE ID PROJECT

Norfolk & Western will raze two-dozen vacant structures, most dating back to the early 1900s, to make way for a 28-acre industrial development project at Conneaut, Ohio. The site, which formerly housed locomotive-servicing facilities, lies along the right-of-way of the former Nickel Plate which became part of NW a decade ago.

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RAILWAY AGE
NEWS

Penn Central: What price government aid?

The business pages of newspapers and magazines were ablaze again last week with Penn Central crisis headlines. From it all one central fact emerged more clearly than ever: Penn Central is racing toward either shutdown or massive government assistance. Since shutdown cannot be tolerated, the questions are (1) how much government aid is on the way, and (2) what PC's owners and managers will have to pay for it.

As Senator Vance Hartke's Transportation Subcommittee prepared to release its own long-awaited recommendations—which reportedly would fall somewhere short of nationalization—PC's trustees itemized the financial needs as they saw them. The need, the trustees said, is for $1.624 billion for investment in plant and service improvements in the period 1973-1976. PC itself can generate just over $1 billion of this. But the carrier will require $600 million from the government by 1976—"with the understanding that $200 million more may be necessary after 1976."

The trustees recommended three alternative forms of government assistance:

"(a). Subsidies until the railroad becomes viable. The form of governmental assistance which would hopefully result in the minimum government involvement and responsibility would be a $600 to $800 million program of subsidies over a period of years. . .The justification for a subsidy is that the amount required is, after all, substantially less than the burdens imposed on Penn Central by excessive service and labor obligations. [The trustees earlier emphasized that they "operate a 20,000-mile rather than the optimum 11,000 mile railroad solely because public authorities are reluctant to permit a reduction in surplus plant, and because labor would expect large labor protection payments, amounting to $774.1 million through 1976 alone, if Penn Central were free promptly to move to a railroad of 11,000 miles."]

"Of course, for its protection, the government should have a voice in controlling the uses to which the subsidy payments are put. If the large part of the program that involves increased roadway maintenance were to be provided by the government, it would appropriately be provided subject to requirements that the railroad continue at least the present level of roadway maintenance with internally financed funds. So as not to support wastefully duplicative facilities in the Northeastern railroad system, but without undertaking the burden of deciding once and for all what would be the ultimate shape of the Northeastern railroad system, the government might require a finding by the disbursing authority that the additional roadway maintenance funds and capital improvement funds will not be spent on facilities duplicative of clearly preferable facilities provided by other railroads. There might also be, as to the capital improvement projects, more definitive required approvals by the disbursing authority.

PC needs up to $800 million in aid—hopefully, under continued private management.

"Such a public subsidy contribution, subject to requirements that the funds be spent for purposes providing direct benefits to the public, presents a minimum, and hopefully a temporary, government involvement and responsibility. Alternative forms of carrying out the program may provide the government and the public with greater control, but may present the correlative disadvantages of involving the government with greater responsibility, longer-term commitment and greater government expenditures.

"(b). Joint venture involving conveyance of rail plant to public authority, government commitment to maintain and to improve plant, and proportionate sharing of user charges paid by private operating company. If, in providing the subsidy described in the foregoing section, more protection for the government is deemed necessary, a joint venture might be considered. Penn Central would convey the essential roadway to a public or quasi-public authority, and the government would make a commitment to maintain and to improve the plant. The railroad, which would remain as a private operating company, would pay user charges to the authority owning the plant in accordance with a formula related to its volume of activity and its ability to pay. Similarly Amtrak and local commutation authorities would also compensate the authority on a user basis. The user charges would be divided among the owners of the authority (the government and the Penn Central claimants who contributed the existing plant) in proportion to the value of their respective contributions. The joint venture could contain provisions for termination and for repaying of the government contribution if railroad earnings so permitted.

"(c). Government purchase or lease of right of way at fair market value with subsequent government maintenance and investment, and with operation by private company paying user charges. Another alternative is government acquisition of the right of way, the trains to be operated by a private contract operator. Again, the private operating company would pay user charges. Acquisition could be through either an outright purchase or a long-term lease to insure continuity of the roadway as protection for the government's involvement. This solution is particularly appropriate in the passenger-oriented Northeastern corridor where long-range government plans may require massive capital investment.

"This alternative would relieve the railroad of any obligation to maintain and improve the right of way. In addition, local property taxes, which are a present burden on the rail system, could be eliminated or greatly reduced.

"Such a solution would provide not only continued service to the public, but also compensation to claimants against the Penn Central estate. This would make it very expensive, for government expenditures would not end with compensation of the private interests involved, but would extend to the maintenance of the right of way and its improvement. . .

"This alternative also could contain provisions whereby the government would divest itself of involvement by selling its leasehold or ownership interest to the private sector if the system developed sufficient earnings."

UMTA's budget set at $1 billion

President Nixon's fiscal 1974 budget is now a matter of public record, and a lot of people at the Department of Transportation are breathing easier.

The Urban Mass Transportation Administration is down for $1 billion in the year beginning next July 1—less than transit advocates had been asking for but more than they had really expected. The $1-billion figure compares with $980 million now budgeted for fiscal 1973 (this was originally also $1 billion, but a $20-million personal-rapid-transit item has been knocked out). UMTA's fiscal '74 budget includes $80 million for research, demonstration and development programs, compared with $73 million in 1973. (The fiscal '72 budget of $604 million included $62 million for RD&D. In view of the Administration's efforts to cut back on domestic spending generally, there had been fears in some quarters that '74 might be a throwback to '72.)

The Federal Railroad Administration fared somewhat less well than UMTA. FRA's Administration-approved budget for fiscal '74 is $144 million. While this is around $22 million more than the '73 budget provides, the gain is more illusory than real. The big item in the '74 budget is $93 million for Amtrak; but only $9.1 million of the fiscal '73 budget is tagged for Amtrak, because Amtrak's major funding for this period, $170 million, was charged off to fiscal 1972. (The $9.1 million carried for Amtrak in the '73 budget is a supplemental appropriation for new services.) On the other hand, FRA's '73 budget carried a special item of $40 million for emergency-facilities restoration (repairing tropical storm Agnes damage) which does not, of course, turn up in the '74 budget.

All of this leaves FRA in '74 with $27 million for its high-speed program, compared with $52.5 million in '73; $13 million for railroad research, compared with $10.4 million in '73; and $3.2 million for the office of the administrator, up from $2.8 million in '73.

Observers noted that the fiscal '74 budget as it now stands does not reflect probable Congressional appropriations for Amtrak in excess of Administration requests, nor does it include provision for emergency aid to bankrupt northeastern railroads.

To keep operating losses down to $93 million, Amtrak will probably have to lop off some trains on July 1. But there will still be money for new equipment since Amtrak has a total of $100 million in unused loan-guarantee authority. Of this amount, $50 million may be used prior to July 1 and $50 million thereafter.

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Leasing and Industrial Loans

Circle 1 on coupon page 37

Earnings rise, but return remains low

A healthy fourth quarter gave Class I railroads a comparatively good earnings year in 1972, but only comparatively. Rate of return on depreciated net investment inched upward to 2.6% for the industry as a whole, compared with 2.4% in 1971.

This return is based on preliminary, unofficial estimates that net railway operating income amounted to $750-775 million in 1972, compared with $702 million in 1971. This would produce ordinary (net) income of $520-$525 million, compared with 1971 net of $354.5 million. If these estimates are correct, NROI in 1972 was the highest since the $1 billion recorded in 1966; and ordinary income was the highest since 1968's $569 million.

While 20-odd railroads continued to operate in the red—with half a dozen in bankruptcy—the southern and western roads were in a relatively strong position, as always, and it was their reports that gave a semblance of health to industry-wide averages.

In a number of instances, record or near record earnings were reported. And it was these roads, for the most part, whose prosperity accounted for forecasts that over-all railroad capital investment would rise in 1973.

The Southern Railway Co., for example, reported record earnings of $85.3 million and net consolidated income before Federal taxes of $100.5 million, on record railway operating revenues of $723.8 million—and Southern at the same time announced record capital expenditures for 1973 of $150 million, up $38 million from 1972 (details on page 41).

A sampling of other reports:

Norfolk & Western reported 1972 income of $89.8 million, up 17% from 1971, on operating revenues of $795 million. This was before an extraordinary charge of $57.7 million as provision for the decline in investments in NW's wholly owned subsidiary, Dereco, Inc., and Erie Lackawanna, which went into reorganization last June 26.

Seaboard Coast Line Industries, Inc., reported consolidated net income of $82.4 million, up 28%.

Southern Pacific Co. and subsidiaries had net income of $108.2 million, compared with $92.4 million in 1971.

Union Pacific Corp. reported record earnings of $104.5 million, up 16% from 1971.

Santa Fe Industries, Inc., had a record 1972 net of $81 million, up 21.5%.

Chessie System reported consolidated earnings of $60 million, double the year-ago figure.

Watching Washington

REID BEDDOW

FIRST SALVOS

UMTA Administrator Frank C. Herringer, 30, doesn't mind at all reminding people he is the son of a New York subway worker. The filial connection between him and the industry he will oversee is fetching: even more reassuring are the words he lately has been speaking to industry leaders. Three days before President Nixon released the 1974 budget Herringer revealed, "The UMTA budget will total $1 billion. . .my understanding is that this is not an area in which the Administration will make significant cuts." He stoutly endorsed a proposal backed last year by DOT Secretary John A. Volpe to tap $800 million from the Highway Trust Fund, and professed a willingness to go beyond that. Asked about Federal operating subsidies for deficit-ridden transit systems, Herringer said he had doubts but retains an "open mind." He said there would be no freezes or impoundments of UMTA funds appropriated but not yet spent.

THE CONGRESSIONAL FRONT

The campaign in Congress to wrest money from the Highway Trust Fund for transit uses is well under way. Hearings began Feb. 7 on the Federal-Aid Highway Act of 1973 (S. 502), introduced by Sen. Jennings Randolph (D.-W. Va.) chairman of the Senate Public Works Committee, and Sen. Lloyd Bentsen (D.-Tex.), chairman of the Roads Subcommittee. This is a conventional bill, identical with the one which died late in the last Congress when transit and highway forces deadlocked over diversion. As in that former bill, S. 502 restricts non-highway use of Trust monies to purchase of buses.

Introduced or about to be introduced are four bills which bear the hopes of rapid transit forces. These are:

—The Administration bill, which, as stated, would tap the $800-million "urban systems" portion of the Highway Trust Fund annually for rapid and bus transit.

—S.679, introduced Jan. 31 by Sen. Edward M. Kennedy (D.-Mass.) and Sen. Lowell Weicker (R.-Conn.), which would free $2.75 billion from the Trust Fund annually for mass transit, but preserving $3.25 billion annually to complete the Interstate Highway System by 1980.

—A forthcoming bill authored by Sen. Edmund S. Muskie (D.-Maine), the successor of last year's "Cooper-Muskie" amendment. Its key provision would allow cities to have the option to use Trust Fund monies to build rail transit systems if the cities felt these were more needed than additional roads in urban areas, with $1.5 billion diverted from the Trust Fund for transit uses, up from last year's $800 million.

—S. 386, introduced by Sen. Harrison Williams (D.-N.J.), which allocates $400 million annually for operating assistance, a $3-billion increase in UMTA contract authority, and a 90/10 ratio for UMTA capital grants. It was passed by the Senate last year, triggering the deadlock.

The outlook for these bills is almost certainly a repeat of last year's scenario: a pro-transit Senate will resist a road-gang House. The intransigence of the Senate will produce a compromise favorable to transit forces. The compromise will be enacted to the more-or-less satisfaction of transit leaders.

General Electric progress in

General Electric opens multi-million dollar Transportation Technology Center

General Electric contributions to land transportation took a big step toward the future recently as GE opened its new Transportation Technology Center in Erie, Pa. The 50,000 sq. ft. facility is the result of years of planning.

The multi-million dollar TTC has computer facilities, laboratories, plus the latest in transportation test equipment.

According to Center Manager Edward L. Lustenader, the goal of the TTC is "to discover ways to increase speed, comfort and reliability for locomotives and transit cars, and to develop concepts and designs for tomorrow's high-performance transportation systems."

To staff the facility, GE has recruited scientists and technicians schooled in major land transportation and research disciplines. They are applying many years of experience in a wide variety of technologies to land transportation problems. Each of the TTC's components concentrates on major research areas.

The **Advanced Technology Component** is working with linear induction motors to power magnetic or air-cushion levitated vehicles, active suspension systems for smoother ride quality, solid state power conditioning, and in power collection for high speed; to reduce cost of operating tomorrow's transportation.

The **Materials and Processes Laboratory** daily tests and examines those materials from the field, after thousands of rugged test miles and hundreds of hours of service. In this way, GE upgrades materials used in manufacturing based upon factual in-service and laboratory testing.

In the **Systems Analysis Component** analytical specialists use computers to simulate product operation. Their mathematical models can predict system performance, isolate trouble spots and explore design alternatives, before the products are manufactured.

The Center's cornerstone was laid by the Honorable John A. Volpe, United States Secretary of Transportation.

Computer-simulation predicts system performance

The Transportation Technology Center's Systems Analysis Component helps give General Electric engineers the answers they need to solve complicated design problems. Using the Center's computer facilities, simulation specialists construct a mathematical model. They anticipate operational demands and environmental hazards. They then predict performance before the equipment is built.

TTC system analysis permits accurate cost/benefit comparisons of existing and proposed products. Will the new design be a benefit to customers?

System analysis can predict potential operational problems and maintenance weaknesses while the system is still on the drawing board and it allows the TTC to explore alternative designs.

The Systems Analysis Component works closely with other TTC teams, and has been particularly helpful in developing advanced propulsion concepts such as linear motors and solid state drive systems.

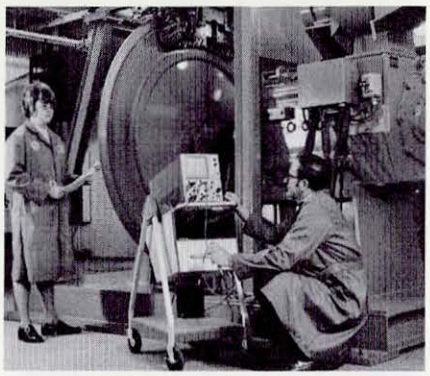
transportation systems

General Electric transportation systems

Advanced Technology Teams explore paths to faster, smoother, more reliable transportation

The Center's Advanced Technology Component is responsible for developing new technology for GE's seven land transportation departments. Its research area houses highly specialized teams working on solutions to a wide range of transportation problems.

One primary area of concern is the development of linear motors for high speed magnetic or air-cushion levitated vehicles. Using the Center's simulated disc-track, the research team is exploring designs both for low-speed people-moving and for high-speed inter-city travel. Linear induction propulsion systems promise to be quiet, vibration-free and non-polluting.



Another team is working on an active suspension system. In it accelerometers sense vertical and lateral movement and then flash a signal to pneumatic devices which automatically stabilize the rail car. Active suspension will mean improved ride quality, higher speeds on curves and lower maintenance costs.

The power collection program is concentrating on the most efficient means of power pickup for ultra-high-speed vehicles. Researchers are exploring new techniques of AC overhead, DC third-rail and multi-phase collection.

Solid state control systems have become extremely important in locomotive, transit system and off-highway vehicle design. Their significance, however, will grow even more with the introduction of tracked air-cushion and personal rapid transit vehicles. The Power Conditioning Team is keeping technology ahead of the need. They are developing more efficient solid-state systems to reduce maintenance and increase over-all performance.

Other Advanced Technology Teams are focusing efforts on improved cooling systems for increased power density and reliability, on ways to boost horsepower without increasing motor size, and on revolutionary diagnostic equipment that can instantly sense a malfunction in a running engine.

Finding the materials that tomorrow's systems will be made of

General Electric's manufacturing departments depend on the Materials and Processes Laboratory for testing and development of materials and methods to meet transportation design, manufacturing and quality control needs. Facilities include sensitive mass spectrometers and simulators that provide passenger-comfort data as well as detailed suspension information. Among the highly trained staff are analytical chemists, metallurgists and dielectric specialists.

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120-03

Transportation research... the way to keep America moving ahead

America's transportation system is experiencing ever-growing traffic congestion, increased shipping costs, air pollution and travel fatalities. Every year, more freight and people must be moved efficiently. Every year, there are new, more rigorous performance, safety and reliability challenges. Both business and government must be willing to support a balanced transportation system, through funding and equitable legislation, to keep ahead of these challenges. General Electric, a research and technology pioneer, continues its traditional leadership role by new investments in the future of land transportation.

Edward L. Lustenader
Manager-Transportation
Technology Center

General Electric Company
Transportation Systems Business Division
Erie, Pennsylvania 16501

GENERAL ELECTRIC

Circle 7 on coupon page 37

Amtrak's French connection

By FRED N. HOUSER
Mechanical Editor

Lyon-Strasbourg, Lyon-Bordeaux, Chicago-St. Louis, Lyon-Nantes. Just what is "Chicago-St. Louis" doing in that string of French terminal cities? It's just that action taken recently by Amtrak justifiably puts the two American rail centers there.

Amtrak recently moved to acquire a pair of French five-car, turbine-powered trainsets expected to go into service in the Midwest later this year, probably in September. The trains, supplied by ANF-Frangeco, are to operate on the Milwaukee-Chicago-St. Louis route. At about the same time these so-called RTG trains *(rames a turbines a gaz*—or gas-turbine trainsets) start running over the Milwaukee and Illinois Central Gulf, the French National Railways will be putting the same 125-mph speedsters on three passenger routes radiating from Lyon.

Amtrak President Roger Lewis announced that the RTG lease will include an option to buy. The price would be $2.3 million per train. At least four U.S. companies—Pullman-Standard, General Electric, Rohr Corp., and Fairchild—have been talking with ANF-Frangeco about licensing arrangements for building the French-designed turbos in the U.S. Amtrak is also acquiring four Turbo Trains designed by United Aircraft.

● **Here and now.** Lewis recently told Railway Age that he is "a here and now man" about Amtrak.

The "here and now" French trains being acquired by Amtrak actually represent the second generation of turbine-powered passenger equipment on SNCF (French National Railways). In 1970 SNCF put in service on its Paris-Cherbourg route ten trainsets of ETG equipment *(elements a turbine a gaz*—or gas-turbine units). This first-generation, ETG design incorporates one gas turbine and one diesel engine for propulsion. The commercial success of this operation, combined with good performance of the equipment, motivated SNCF to expand its turbo service to other routes. By 1971 SNCF had 16 RTG trainsets on order and an option for an additional 16. It is two of the first order which will be leased to Amtrak.

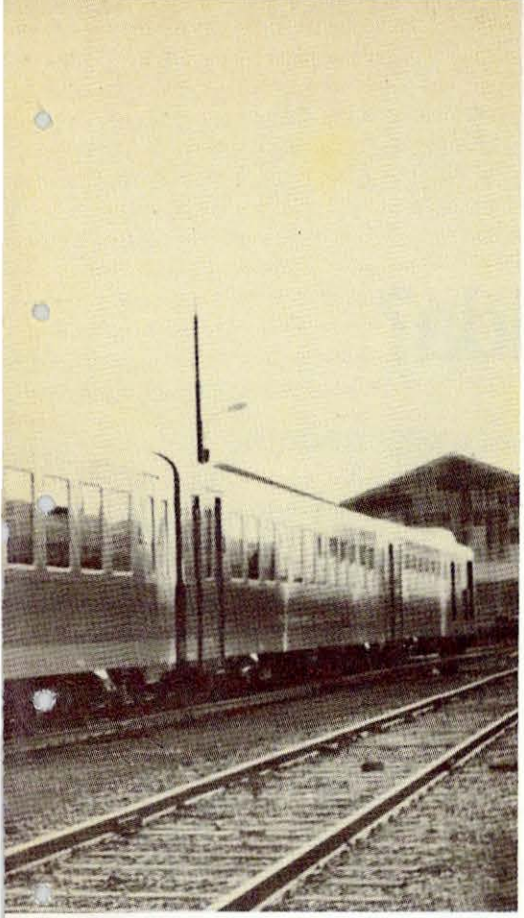
Last week Railway Age interviewed George M. Beischer, Amtrak chief mechanical officer, about the status of RTG—Amtrak's new French connection. Said Beischer:

"SNCF currently has a three-car train which is being operated under test. Revenue service is scheduled in France at the end of spring or early summer. No specific date is yet set for delivery of the RTG trains to the U.S., but it is anticipated that this will occur during the summer. Revenue service possibly would begin here in late summer or early fall.

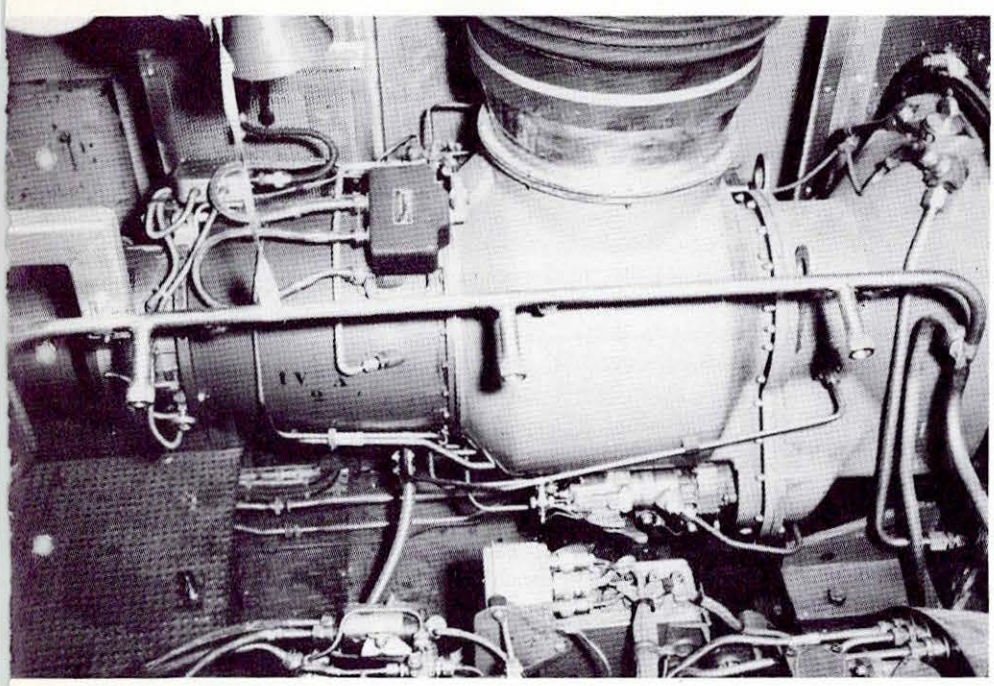
"It is considered that the French trains will be in service between Milwaukee-Chicago and Chicago-St. Louis. Just where the two United Aircraft turbos will fit into this is not known right now. They may duplicate part of the route and then go to other destinations; there has been nothing specific on their assignments by routes. We are working on all aspects of the operation such as clearances and operating restrictions with the specific railroads.

"We are presently working with FRA in resolving all requirements that the RTG trains must meet for service in this country and to obtain certification from FRA for their operation. We will have to make certain minor modifications to comply with 'safety-appliance' requirements. We, of course, will have the trains painted in our Amtrak colors."

● **Inside look.** Beischer went on to say: "Internally, the thinking now is that Amtrak will make its RTG a 'one-class' train, equivalent to the second-class



RTG TRAINS for U.S. will be painted in Amtrak colors and modified to fit FRA standards; seating throughout will be that of this second-class coach.



TRACTION TURBINE drives through Voith hydraulic transmission; smaller auxiliary turbine (foreground) drives alternator for train power.

configuration of SNCF. While some changes had been considered, it is now planned to maintain the meal-service arrangement which is basic to the French trains.

"We are currently negotiating for a maintenance site in Chicago and work has been done with regard to the basic layout of this shop. As soon as property acquisition is completed, we will proceed with construction of an entirely new facility specifically designed for maintenance of all the Turbo trains. Ellington-Miller, architects, are working with us on this. Whiting Corp. is working with them on facilities such as drop tables.

"This Chicago shop will be wholly Amtrak owned, operated and staffed. It would not be the first such operation for us since Amtrak recently took over the Fields Point facility of United Aircraft at Providence, R.I., which maintains the Turbo equipment in the Northeast Corridor, and it is now Amtrak managed and all employees are Amtrak. We intend to build a new facility for the Northeast Corridor, possibly in the Boston area."

The new RTG is propelled by a pair of gas turbines driving through hydraulic transmissions to the truck under the lead end of each power car at the train's ends. Between the two power cars are three unpowered trailers. In addition to producing 2,280 hp for traction, a smaller turbine in each power car drives a 250-kw auxiliary generator which supplies electric power for all train services—lighting, heating and air-conditioning.

● **Next generation.** Already SNCF is looking to the next generation of turbine-powered passenger train. Presently under test is a five-car articulated trainset, the TGV *(turbines a gaz a vitesse*—or fast gas-turbine trains), involving turbo-electric power plants and delivering its power through all six traction-motor-equipped trucks under the train (RA, Aug. 14, 1972, p. 20). TGV, designed for 150-mph speeds, has already done considerably better than that during tests on SNCF's Landes line in western France.

The third-generation French turbo is completely articulated. The trains which Amtrak will acquire are of more conventional configuration with a pair of two-axle trucks under each car and standard couplers. The train is 423 feet long. The intermediate trailer cars are just over 84

(Continued on page 27)

Corridor trains for Florida?

Business and civic leaders in Central Florida describe their citrus-and-tourist-rich slice of the Sunshine State, with a mixture of pride and anxiety, as the fastest growing megalopolis in the nation. And faster than most other areas of explosive population growth, Central Florida is moving to cope with the biggest single headache that megalapolitan status brings: corridor congestion and highway paralysis.

"Southern California blew its chance to be a good place to live; California missed the train," one Orlando businessman commented recently. "We don't propose to make that mistake."

While this man may have overstated the case against California, an impulse common among Floridians, he did succinctly sum up the sentiments of a growing number of powerful businessmen and politicians who feel that Central Florida, if it is to avoid Los Angeles-like paralysis and pollution, cannot afford to miss the train—or the TACV or whatever other form of surface mass transportation is finally selected by a committee shopping for a system.

Right now trains seem to have the inside track as an immediate and near-future solution to the transportation problems of a corridor that extends from Tampa/St. Petersburg on the Gulf Coast, through Disney World and Orlando, and on to Daytona Beach on the Atlantic. There is considerable support for TACV (tracked air-cushion vehicles) as an ultimate solution. But TACV is still in the prototype testing stage; as an operational reality it is still probably 15 to 20 years away for systems of the magnitude contemplated in Florida. A good possibility seems to be that Florida may opt for conventional rail now, with phase-in to TACV later, which seems to be the pattern emerging elsewhere. (Japan, which long ago made the decision to go all-TACV when the time and the technology are ripe, is nonetheless continuing to build conventional rail lines at a furious pace. Similarly, Germany and France, where the state-of-the-TACV art is more advanced than in most other countries, are also putting in new standard passenger rail lines and will be for years to come.)

● **The options are open.** The alternatives are not, of course, limited to rail or TACV; State DOT Secretary Walter Revell emphasizes that all options are still open.

CORRIDOR COUNTIES WILL KEEP GROWING

County	County Seat	Population 1960	1970	1980*
Pinellas	Clearwater	374,665	522,329	635,500
Hillsborough	Tampa	397,788	490,265	574,000
Polk	Bartow	195,139	227,222	292,100
Lake	Tavares	57,383	105,216	174,300
Osceola	Kissimmee	19,029	25,267	42,000
Orange	Orlando	263,540	344,311	553,700
Seminole	Sanford	54,947	83,692	134,600
Volusia	De Land	125,319	169,487	218,000
Brevard	Titusville	111,435	230,006	250,000
		1,599,245	2,197,795	2,874,400

*Projected

There is a smattering of support for monorail, but only a smattering. The feeling is that while monorail has its place (e.g., in Disney World), that place is probably not in long or even medium-haul transportation.

One member of a technical advisory committee is plumping for airbuses, but with no visible support.

Express busways have been and remain under serious consideration—but again there's considerable local feeling that while there may be a place for them, the place may not be a Florida corridor.

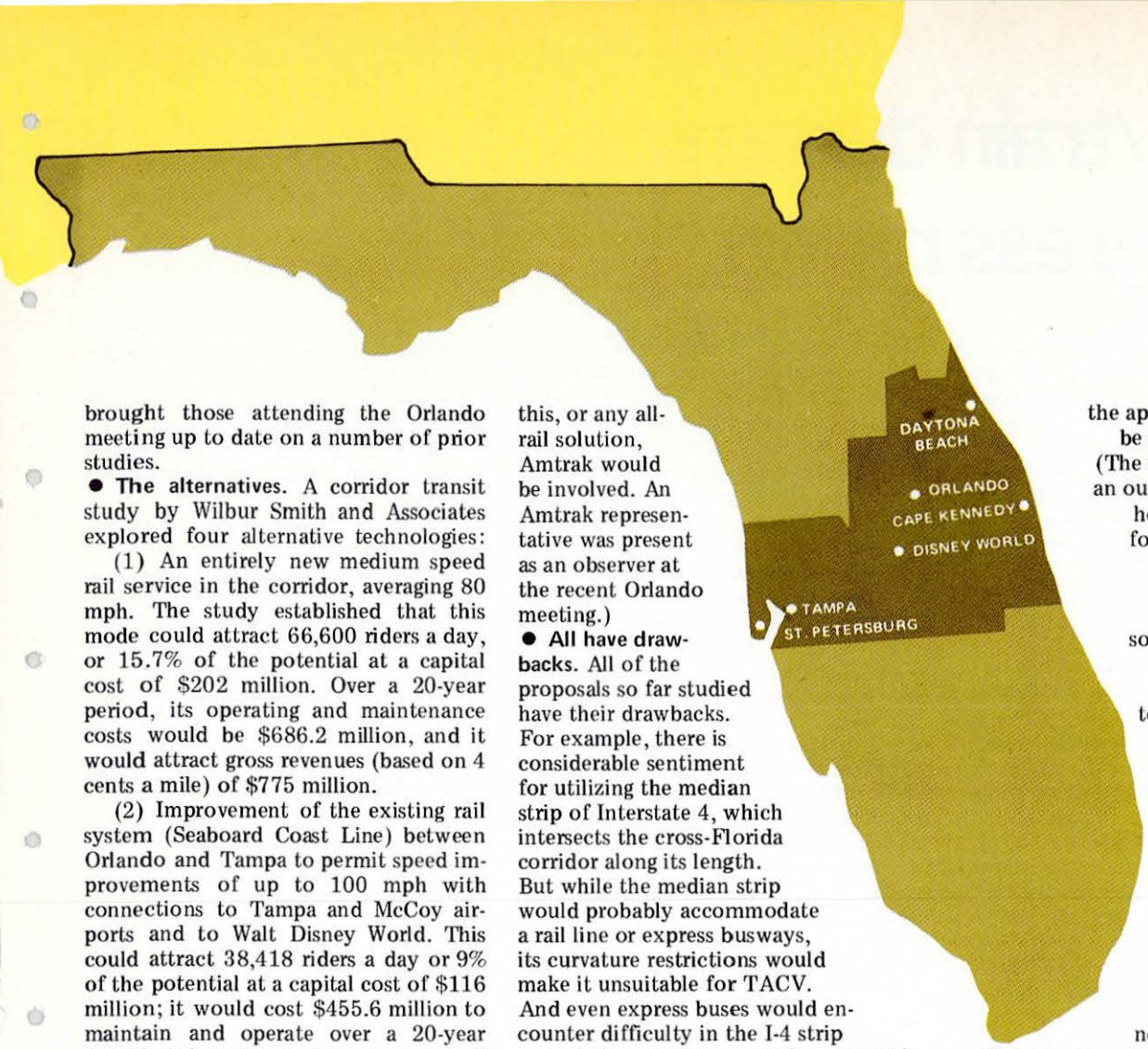
There is even some agitation for an all-freeway solution, though not much. ("It's not just considering the relative desirability of a four-lane, 30-mile traffic jam vs a twelve-lane, 7½-mile traffic jam," says one consultant. "The construction of a massive freeway link between the corridor cities would require extensive additional purchase of right-of-way and would encourage urban growth along the corridor. The traffic generated by this same growth would only add to the problem of keeping freeway traffic at acceptable levels.") There are others who want to go right away for a TACV solution, relying on the familiar refrain that it is "the surface mode of the future." But the question remains: How long can you wait for the future to get here?

● **Organizing for the job.** How close is Florida to actually making—and then implementing—a decision? Says State DOT Secretary Revell: "We're not crawling any more, but we're still walking. It's time to start running."

First must come organization for the job, then funding. The latter is far from resolved yet; but to start running with the former, Revell in mid-January called a meeting in Orlando of a blue-ribbon Central Florida Corridor Transportation Development Committee. Attending were such state legislative leaders as Senate President Pro Tem Louis de la Parte; State Senator Ralph R. Poston Sr., chairman of the Senate Transportation Committee, and his counterpart on the House side, Vernon C. Holloway; along with mayors, planners and technical advisors. Altogether, about 50 of Florida's most powerful government, civic and business leaders showed up for the meeting; and outside observers who were present came away with the feeling that they meant business.

Senator de la Parte warned, "We can study it for 10 years, fight over routes forever. The options are endless. But our time isn't." One good reason for acting immediately on routes, noted Ray G. L'Amoreaux, director of planning and programming for the State DOT, is the need to acquire right of way and protect it from land developers. "Five years from now you may be wondering where you're going to put a system." Plan now, fund later, suggested L'Amoreaux: "If we wait until it's absolutely economically feasible, we may be too late."

DOT chief Revell and his mass transit division director, William Fowler,



brought those attending the Orlando meeting up to date on a number of prior studies.

● **The alternatives.** A corridor transit study by Wilbur Smith and Associates explored four alternative technologies:

(1) An entirely new medium speed rail service in the corridor, averaging 80 mph. The study established that this mode could attract 66,600 riders a day, or 15.7% of the potential at a capital cost of $202 million. Over a 20-year period, its operating and maintenance costs would be $686.2 million, and it would attract gross revenues (based on 4 cents a mile) of $775 million.

(2) Improvement of the existing rail system (Seaboard Coast Line) between Orlando and Tampa to permit speed improvements of up to 100 mph with connections to Tampa and McCoy airports and to Walt Disney World. This could attract 38,418 riders a day or 9% of the potential at a capital cost of $116 million; it would cost $455.6 million to maintain and operate over a 20-year period and would generate revenues of $344.7 million.

(3) Express buses operating on exclusive lanes at an average 60-mph speed, attracting 80,700 riders a day or 19% of the potential at an initial capital cost of $154 million; requiring $346 million for operations and maintenance over the next 20 years and producing revenues of $775 million.

(4) A 130-mph TACV system, which could attract 30,149 riders a day, or 7.1% of the potential, for a capital outlay of $222 million. Costs over the 20 years are projected at $372.1 million, and revenues at $434.2 million.

The Wilbur Smith study suggested that any system chosen should be developed in three stages: (1) Disney World to Orlando (to alleviate the very immediate problems of congestion in the approaches to the vast amusement complex, where on occasion traffic has been jammed for 30 miles); (2) Disney World to Lakeland and Tampa; and (3) phasing in of the Brevard and Volusia County segment on the Atlantic Coast.

An additional study made for the State DOT by Strategy Research Corp. of Miami, and limited to the existing rail line between Orlando and Tampa, determined that from a market standpoint it would be economically feasible to implement 100-mph rail service using modern turbine-powered equipment. (In this, or any all-rail solution, Amtrak would be involved. An Amtrak representative was present as an observer at the recent Orlando meeting.)

● **All have drawbacks.** All of the proposals so far studied have their drawbacks. For example, there is considerable sentiment for utilizing the median strip of Interstate 4, which intersects the cross-Florida corridor along its length. But while the median strip would probably accommodate a rail line or express busways, its curvature restrictions would make it unsuitable for TACV. And even express buses would encounter difficulty in the I-4 strip since it is not wide enough to provide for turnouts and passing lanes.

● **No time for Mickey Mouse.** As of now, only one thing seems certain: Central Florida is moving to resolve its people-moving problem, and the solution is not going to be more freeways. The basic problem is starkly told by any number of statistical projections. The important figures are these: (1) Right now 12 million passenger trips each year are being made in the Central Florida corridor by automobile; only 29,000 are being made by rail, bus or air. (2) Before Disney World, a 43% increase in traffic between 1970 and 1980 was projected; the post-Disney World projection is for an 80% increase.

One Floridian who is voting for trains explains his position this way: "Just because Disney World helped to create the problem doesn't mean we have to go for a Mickey Mouse solution."

● **The money problem.** Mickey Mouse whatever, the solution is not going to be a cheap one; money is going to be a problem, though probably not as severe a problem here as in less well-endowed areas. Florida is comparatively rich and enjoys surpluses in its state treasury. There is also hope for a considerable chunk of Federal aid; the great interest shown in the project by U.S. Senator Lawton Chiles of Florida suggests that the appropriate efforts will be made in Washington. (The Orlando meeting was an outgrowth of a meeting held by Senator Chiles for state and local officials last August.) At the present time, there is no obvious source of large funding at the Federal level. Because this is an intercity, rather than an urban, program, the billions of dollars being committed by the Urban Mass Transportation Administration are not available for corridor programs. And Amtrak, with its miserly funding, has no money to spare.

But new laws can be written, and old ones rewritten. A special law was provided for the Northeast Corridor; and Central Florida hopes that no less will be done for its own mini-corridor.

● **Question time.** The question of funding is only one of many to which answers are now being sought. Some of the questions requiring further exploration which Secretary Revell put to the Orlando meeting were these:

—What are the criteria for assessing the environmental impact of the candidate travel modes on the corridor?

—What is the attitude toward economic and land use development in the corridor, and what are realistic measures for achieving the desired degree of development?

—What type of organizational structures could be expected to construct/operate an inter-urban system if a public transit system is selected for the corridor?

—What powers are necessary for the "corridor organization" to insure integration of inter-urban and intra-urban transportation systems?

There are these questions, and many more, big and small, that must be answered before Central Florida can achieve a non-freeway solution to the "people moving" crisis that is already descernible and will become acute in just a few years. ■

Track/train dynamics: A progress report

A classic example of an exercise in oversimplification is the description often heard of rail transportation as being merely "the steel-wheel-on-the-steel-rail mode." Railroading, unfortunately, is not all that simple. As a matter of fact, as a multi-million-dollar track-train dynamics research program that's just now gaining momentum is pointing out, the task of getting the steel wheel to rise smoothly and securely on the steel rail is a highly complex one.

Participating in this multi-phase study of the interaction of track and train are the Federal Railroad Administration, the Railway Progress Institute and the Association of American Railroads. A few RPI members and a handful of railroads are also supporting the program on an individual basis.

● **Ten-year plan.** The program, which is divided into three phases, is expected to take 10 years to complete. In Phase I, a two-year project started in mid-July 1972, the emphasis is on train handling and train makeup and their effects on the wheel-rail relationship. Phase II, dealing with specifications for track, rolling stock and components, will follow and will last three years. The final five-year phase will deal with employment of advanced technology to achieve the ultimate goal of safer, more reliable rail transportation.

R.D. Spence, vice president-operations of Southern Pacific, is the chairman of the project review committee. W.J. Harris, Jr., vice president of the AAR's R&T department, is vice chairman. TTD project director is E.F. Lind, who was SP's manager of analytical engineering until placed on special assignment to direct the national program.

● **Bibliography prepared.** Phase I of the program is expected to cost about $3.4 million and require 15 man-years of effort to complete, according to Ed Lind. A major undertaking in this phase is the preparation of a bibliography of a multitude of subjects dealing with TTD. Experiences of foreign railroads in their encounters with the TTD phenomenon are included in the bibliography, which is expected to be available soon in loose-leaf form at a cost of $20. Over 1,000 pages long and printed in four volumes, this bibliography is described by Lind as "a continuing activity—one that will involve the printing of supplements about every six months."

Just a little over a year ago, at an AAR-sponsored track-train dynamics seminar held in Chicago, the industry leaders learned how deeply the subject had been studied and how much excellent information existed on TTD.

This two-day conference, the first of its kind ever held, covered, for example, such diverse subjects as simulator training of enginemen, vibration problems of certain types of cars, wheel-rail loadings of locomotives, and analytical and experimental techniques used to study the problems of TTD. Actually, about two dozen subjects, all related in some way to TTD, were covered, leading one chief mechanical officer in attendance to comment afterwards: "I think we're all convinced now that the railroads aren't a vast technological wasteland."

● **Another seminar set.** A seminar structured to bring railroads, suppliers and government agencies up to date on the progress of Phase I of the current AAR research program has been tentatively scheduled for late April in Washington, reports Lind. Much of this seminar will be devoted to discussion of all the data now being assembled by TTD task forces on current operating practices of railroads on this continent. It is the desire of the project review committee to hold regional seminars.

It's a 10-year project, but information will be fed out as it develops.

Phase I is actually sectioned off into 13 tasks, with the initial task, of course, dealing with the administrative function and under the direction of Ed Lind. Task 2 is the preparation of the bibliography, which Lind feels will go a long way toward "preventing duplication of research efforts in the years ahead." The collection of information on current operating practices, which is Phase 3, is moving ahead at a quickening pace, adds Lind, and both long- and short-range goals have been established already for this particular task. As a matter of fact, plans call for a report to be issued in mid-April establishing interim guidelines on train handling and makeup. Reasons Lind on this approach: "Who wants to support a program when you wait two years to get any results?"

● **Coming up:** Other tasks in the initial phase of the TTD program that will be completed before mid-1974 are:

—Task 4: Investigating engineman sensitivity.

—Task 5: Development of an accident- and failure-reporting system.

—Task 6: Development of acceptable dynamic performance criteria for handling trains.

—Task 7: Development of mathematical models.

—Task 8: Component characterization.

—Task 9: Instrumentation.

—Task 10: Validation of mathematical models.

—Task 11: Development of optimum train handling and train makeup matrices.

—Task 12: Development of detailed plans for Phases II and III.

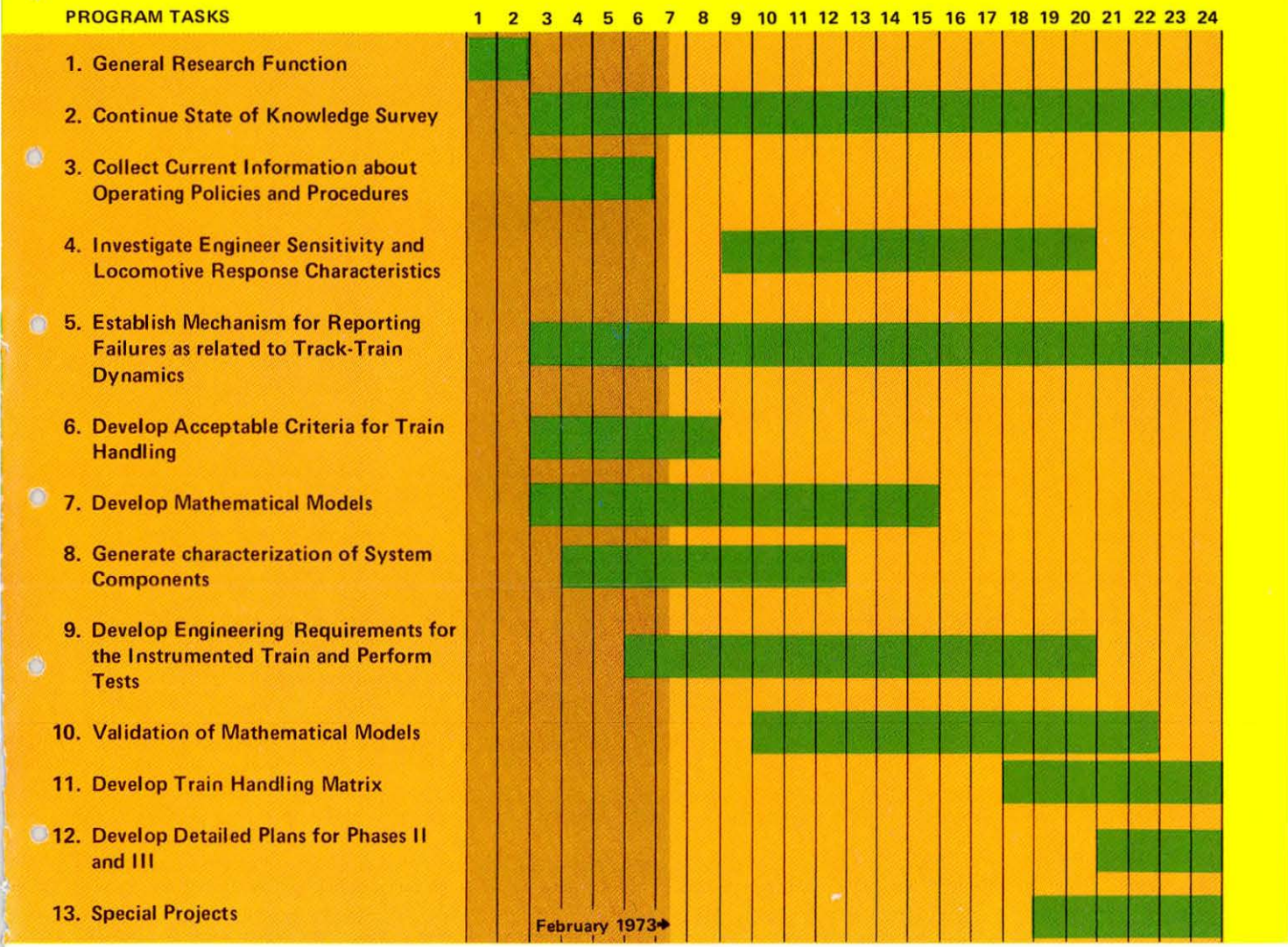
—Task 13: Special projects, i.e., harmonic roll and wide gauge.

Each of the task forces has been instructed to go into finite detail in its investigation of the area assigned to it. For example, in Task 3, which deals with train handling and train makeup, among the subjects to be studied are: Power brake law tests, braking, power considerations, back-up procedures, economic considerations, train length, and a host of other factors that exert an influence in this particular area of railroading. Further evidence of the depth of the study can be seen under the sub-heading of economic considerations, where such things as destination vs. track-train dynamics will have to be studied, yard switching limitations will be investigated, as will schedules.

● **Top priority.** All the tasks assigned in Phase I are, of course, important. Task 3, however, has probably been given the top priority status of all. The fact that interim recommendations on train handling and makeup are to be issued in the near future—while in-depth research continues—is a pretty good indication of the urgency of this task. It is felt by the research leaders that this particular task represents the opportunity for greatest potential savings in the shortest time possible. Because much of the information needed for Task 3 already exists on the railroads—in rule books on operations and safety, training procedures, charts, track profiles, and so forth—the costs should not be high.

The human factors task—Task 4—is currently in its early stages of development. Much of the research work in this area will be conducted at the Transportation Systems Center in Cambridge, Mass., where a great deal of work along

PHASE I TIMETABLE


PROGRAM TASKS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
1. General Research Function
2. Continue State of Knowledge Survey
3. Collect Current Information about Operating Policies and Procedures
4. Investigate Engineer Sensitivity and Locomotive Response Characteristics
5. Establish Mechanism for Reporting Failures as related to Track-Train Dynamics
6. Develop Acceptable Criteria for Train Handling
7. Develop Mathematical Models
8. Generate characterization of System Components
9. Develop Engineering Requirements for the Instrumented Train and Perform Tests
10. Validation of Mathematical Models
11. Develop Train Handling Matrix
12. Develop Detailed Plans for Phases II and III
13. Special Projects
February 1973

HOW IT'S BEING FUNDED

Phase 1 estimated fiscal requirements July 1972 to June 1974

	Federal Railroad Administration	Railway Progress Institute	AAR and Railroads	Total
Services	$1,045,000	$541,000	$700,000	$2,286,000
Dollar value of contributed manpower . . .	0	$259,000 (92 1/2 man months)	$670,000 (239 1/2 man months)	$929,600 (332 man months)
TOTAL	$1,045,000 (33%)	$800,000 (25%)	$1,370,600 (42%)	$3,215,600

this line has been conducted in the past and where the necessary testing equipment for such things as physiological study already exist. In all likelihood, Lind says, Southern Pacific's locomotive simulator will also be made available.

Task 5 is described by Lind as a job aimed at "developing an early warning system" for railroads so that they may avoid the adverse effects of TTD which, ultimately, could cause a loss of life. This particular task is scheduled to get under way in February and is expected to take up a year-and-a-half to complete. There's little question but what the computer will play a major role.

● **Help from the computer.** Obviously, all remaining tasks in Phase I will lean heavily on the computer for assistance. The DOT test installation at Pueblo, Colo., is also expected to be called upon for assistance with some of the tasks in the later portions of the initial phase of the TTD program. Along toward April, Task Force 9 is expected to instrument a unit coil train, advises Lind, so that it will be possible to determine what effects dynamic phenomena have.

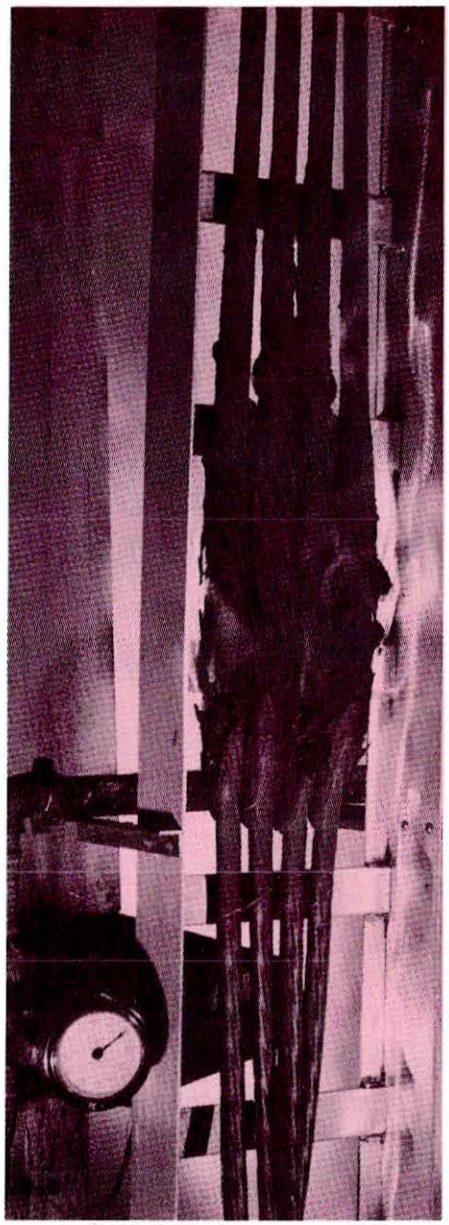
About five months before Phase I is completed, or in other words, in early 1974, the TTD program will begin preparing for the opening of Phase II, a portion of the entire program that, Lind admits, will probably cost considerably more than Phase I.

At the moment, however, it is Phase I that is commanding the attention of engineers and researchers at the AAR Research Center in Chicago, where the TTD staff is headquartered. And there's an air of confidence at the Center that, through a unified effort, the problems associated with track-train dynamics can be solved. And when this happens, the railroads are going to be in a much better competitive position. ■

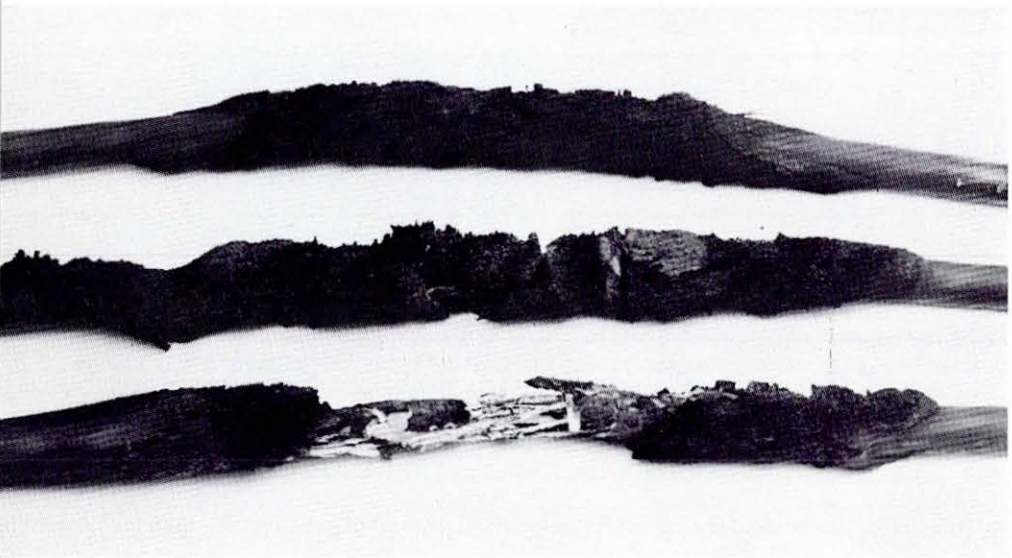
Low-smoke cable made for subways

Cables exposed to flame in subway tunnels came in for special attention by the New York City Transit Authority after a station fire in 1970. The blinding smoke and acrid, toxic gases involved in such a situation can be a greater threat to passengers than the fire itself.

After an investigation of the NYCTA incident Dr. William J. Ronan, chairman of Metropolitan Transportation Authority which operates NYCTA, initiated a search for signal and power cables that would produce less smoke and toxicity than traditional cables if they were ever exposed to fire. This is the primary concern, since blinding, thick smoke in a confined area can easily breed panic. The situation may be further complicated if the fire interrupts cirucits which can then result in loss of power, lights, ventilation and communications. The problem is not one for NYCTA alone but has been a concern of all subway operators. In any case, minimizing the effects of smoke could increase the time available for passenger evacuation.



TEN MINUTES of exposure to high-temperature gas flame has caused VFR/LS cable jackets to emit no black smoke; the cable swells, serving to protect its multiple conductors inside, assuring circuit integrity for longer period than previously possible. There has been no "candle-wick" effect along cables.



FLAME EXPOSURE at about 1,500 deg F showed new cable exhibiting a spongy swelling of the jacket after 5 minutes (top), retaining some jacket integrity after ten minutes (center) and then exposing the conductors only after 15 minutes (bottom), twice the time required for standard signal cable.

Researchers at the Passaic, N.J., facility of The Okonite Co. undertook the development of a flame-resistant, low-smoke-producing cable for subway signal and power systems.

Okonite's research began with an examination of the smoke-emitting properties of existing elastomeric insulating and jacketing materials. It was decided to concentrate efforts on development of a low-smoke jacketing compound. This outer "skin" of a cable is the first to come into contact with an external fire. Conventional sheathing, in general generates more smoke than does insulation.

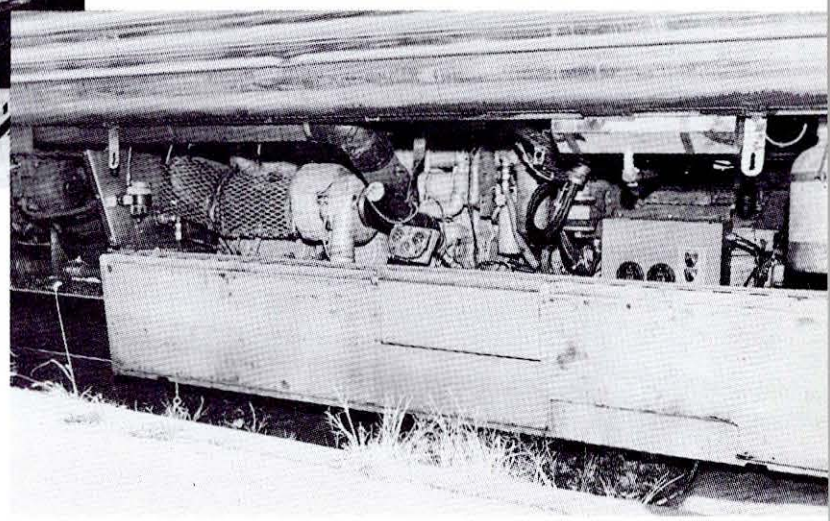
Prior to undertaking the low-smoke project, Okonite had already established for cable a flame testing system much more comprehensive and realistic than is required by Underwriters' Laboratories or electric utilities. This laboratory simulation involves a gas-fired flame source that could reproduce conditions which might follow a heavy short circuit or arcs originating at subway third rails.

It is normal practice to place signal and power cables along tunnel walls or in open trays. Hence, they are vulnerable to any fires which may occur. Cables on cars may also be involved.

Okonite has started production of its new Okonite-Okoprene VFR/LS (Very Flame Resistant/Low Smoke) jacketed control cable. Application has been made for a patent on the new jacket formulation. The cable uses the standard Okoprene insulation, retaining the physical and electrical characteristics of regular railroad signal cable. Smoke emission from either the control or power cable is reduced by approximately 55%, compared with the standard design, when subjected to external flame. The small amount of smoke given off is white or translucent. It is believed to be of sufficient density to actuate smoke-detecting equipment.

The new organic jacketing approximately doubles the time required to short-circuit a control cable during flame testing. For example, a standard NYCTA signal cable with neoprene jacket had its insulation destroyed in just over eight minutes, while the VFR/LS cable did not short for over 16½ minutes. This is apparently due to the tendency of the low-smoke jacket to swell and retain its structure (intumescence) so that the cable interior is protected.

The new cable is also noted for not showing any candlewick effect. Tests have shown that there is a substantially reduced propagation of flame along cables which are subjected to fire at one point. ■



BOSTON & MAINE's rail diesel cars which provide commuter service on series of routes radiating from Boston's North Station (left) now include test car with Cummins engines. New power plants (below) have been installed in equipment housing of same configuration originally used.

Cummins diesels tested as power for B&M's RDCs

Boston & Maine management has been taking a hard look at the fleet of 88 Rail Diesel Cars with which it operates suburban service out of Boston for the Massachusetts Bay Transportation Authority. The cars, with up to two decades' service since being built by Budd, have racked up an enviable record. Carbodies and trucks have come through millions of miles showing little evidence of the rugged service to which they have been subjected.

However, B&M has been increasingly concerned about the power plants on the cars. This has set off a project aimed at eventual re-powering of the fleet. Presently under test on one car is an installation utilizing Cummins diesel engines and Twin Disc transmissions in place of the original General Motors engines and transmissions. John Crofts, manager of transportation sales for Cummins, describes the present test set-up as "a breadboard application of proven equipment components."

The analogy to electronic circuit design in which tentative arrangements are tested before finalizing the application, describes exactly how the RDC prime-mover application has been worked out. Early last spring a trial installation of the 310-hp Cummins NT-855-RS engine and Twin Disc TAC-22-1307 transmission was made at B&M's North Billerica, Mass., shops. It was then found necessary to modify the transmission by tilting it 70 degrees from vertical to provide greater clearance over the rail and make it the same as that under the engine. Similarly, the new cooling system arrangement has required modification as the service test proceeded.

Cummins has extensive experience in powering rail vehicles. Its four-cycle, six-cylinder engine has a background of 40 years' service in rugged applications. General Electric used this prime mover in 44-ton switching locomotives it once produced. B&M can point to one such GE unit which has operated for 25 years and still has its Cummins engines with the original crankshafts.

In other nations, where self-propelled passenger cars (as well as passengers) are far more popular than in the U.S., Cummins has supplied diesels for literally hundreds of rail applications. Builders in Australia, Japan and Switzerland have made applications not unlike those Cummins now proposes for B&M. The Australian applications are on RDC-type cars produced there by builders under Budd license. In addition to extensive service experience (extending back two decades), Cummins has put the B&M engine application through its computerized performance calculation.

It was 1970 when the possibility of applying Cummins engines on U.S. RDCs was first proposed to B&M. Soon thereafter, B&M, MBTA, Cummins and Twin Disc began negotiation on such a repowering project and subsequently the pair of engines was manufactured. By last summer they had been installed under the car. By the time this winter's service testing is complete, it is expected that the project's participants will have spent about $100,000.

The higher rating of the Cummins engine, combined with the two-speed transmission, gives higher acceleration rates, which are important for the frequent stops characteristic of B&M's commuter service. There is also added power available for accessories. Increased transmission cooling capacity gives a better margin for single-engine operation or for handling trailers. Because of the intercoolers which heat intake air and an arrangement for controlling fuel admission during acceleration, the smoking of the RDC is substantially reduced.

Each Cummins engine incorporates a high-capacity, engine-mounted air compressor. This provides enough capacity for the entire car and will cut maintenance requirements. A retarder in the transmission gives virtually dynamic braking characteristics to the car, reducing wear on the car's regular brakes.

One of the most important phases of the re-powering is the goal of extended maintenance periods for the RDC diesel engines. B&M mechanical officers hope for a substantial improvement over the 125,000-mile overhaul cycles for existing engines. Cummins is confident about doubling the figure.

Numerous fully instrumented tests have been run with the repowered RDC, primarily on the 25-mile Boston-Lowell, Mass., line. This includes one of the steeper grades in B&M's commuter trackage. "Car performance during testing can be termed nothing less than excellent," it was reported. The new power plants showed the capacity for towing a dead trailer and for starting such a combination on the grade. This combination was also moved with a single engine without exceeding engine and transmission temperature limits. At times when the Cummins-equipped car is not being tested, it operates in the regular RDC commuter pool.

Reportedly other railroads operating these self-propelled cars are looking at the possibility of repowering. B&M itself will operate the prototype car at least until spring before any decision is made on additional installations. ■

WABCO IS CONTROL AT ALYTH
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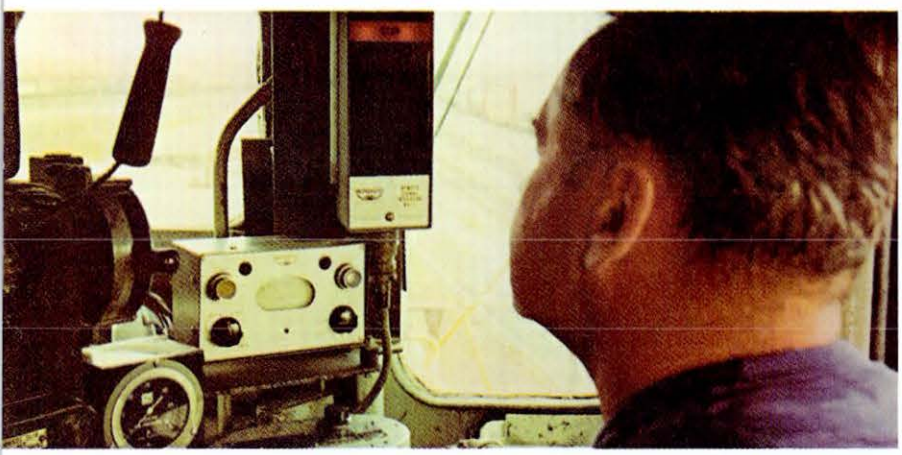
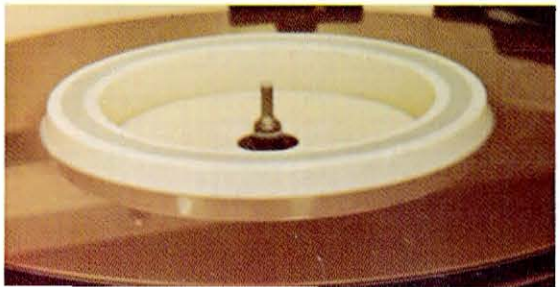
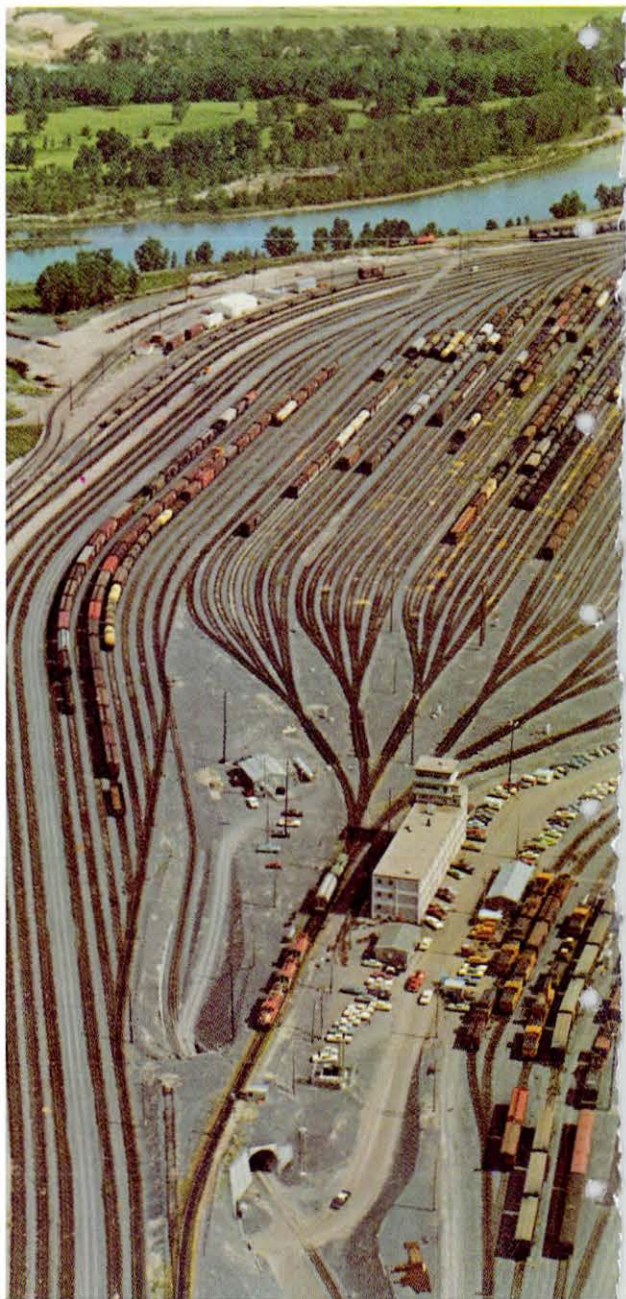
3000 CARS-A-DAY CONTROL

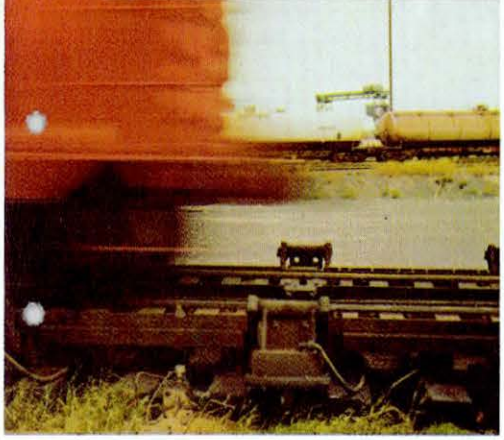
CP's Alyth classification yard in Calgary can handle 3000 cars daily. It has achieved the goal of railroads everywhere: greater efficiency with reduced operating expenses. The efficiency comes from having more automated controls than any other yard in the world. WABCO controls.

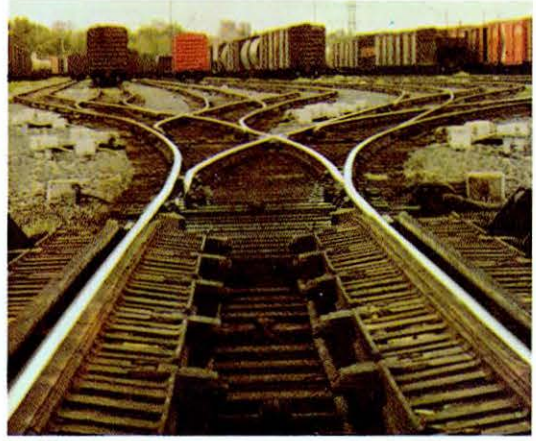
As an incoming train rolls toward the hump, an automatic car identification scanner verifies the car's number. A computer, with the consist of the train already stored in its memory bank, takes control of the operation

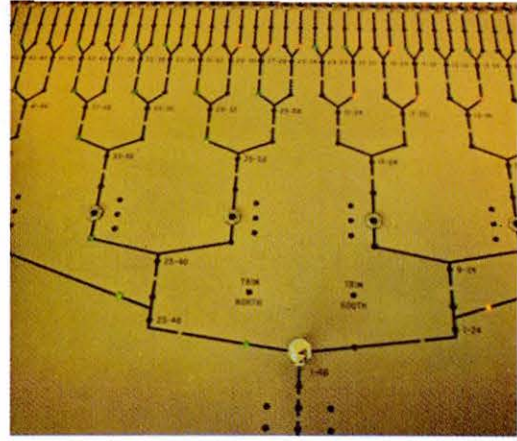












of retarders and switches.

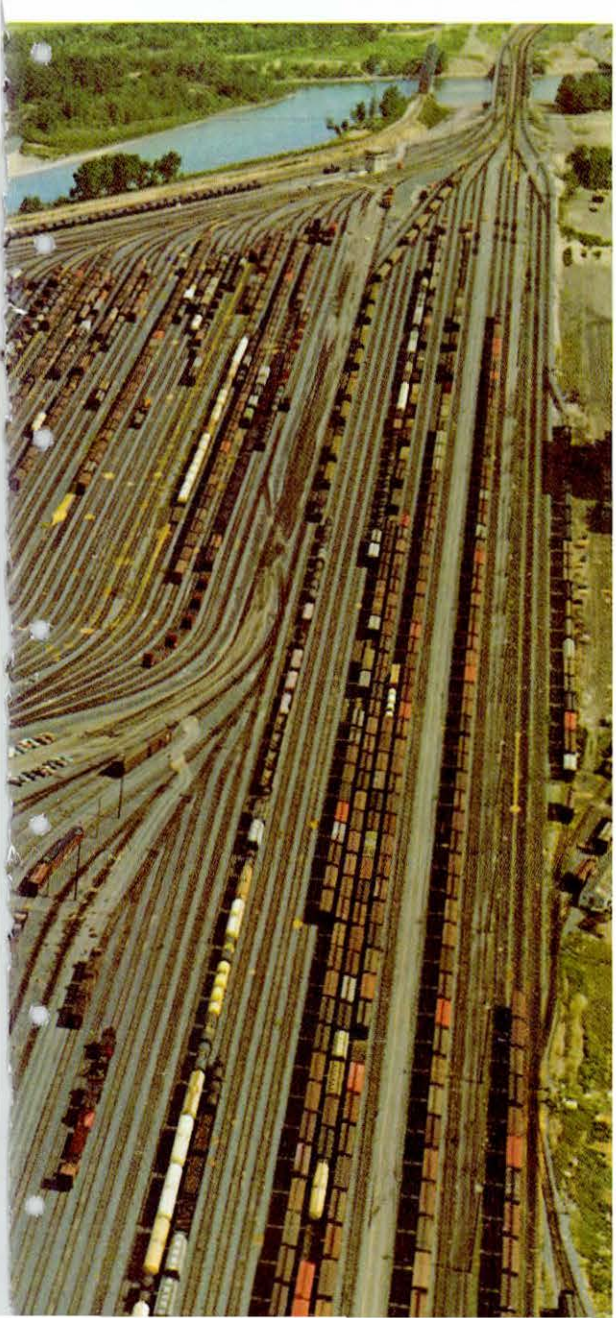
The computer continually updates information on the number of cars and their position on the destination track and calculates the distance the car must roll.

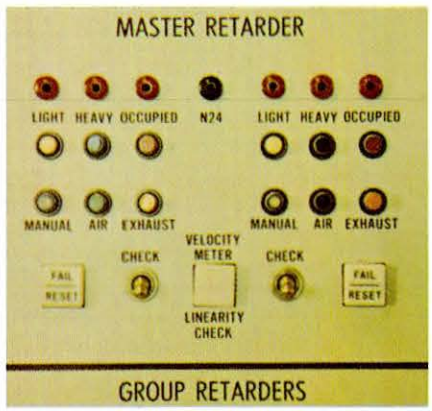
In micro-seconds, car length and speed are measured by radar. Measurements of its weight and "rollability" are made and proper signals are flashed to the retarders to apply just the right amount of braking to achieve safe couplings with standing cars.

The speed of the humping locomotive is automatically controlled from the crest.

Other highly sophisticated devices perceive and make corrections for irregularities in the operation. In an emergency situation, the operation is automatically stopped.

The expertise that made this yard possible can be put to work for you. To start things rolling, write: WABCO Transportation Systems Group, Union Switch & Signal Division, Westinghouse Air Brake Company, Pittsburgh, Pennsylvania 15218.





TRANSPORTATION FROM THE WORD GO

The WABCO Transportation Systems Group is: Union Switch & Signal Division, Westinghouse Air Brake Division, WABCO Ltd., Cardwell Westinghouse Company, Freios e Sinais do Brasil, S.A. In Transportation, WABCO is also 17 European operations and licensees and agents throughout the world.

WABCO
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Circle 8 on coupon page 37

BOOKSHELF

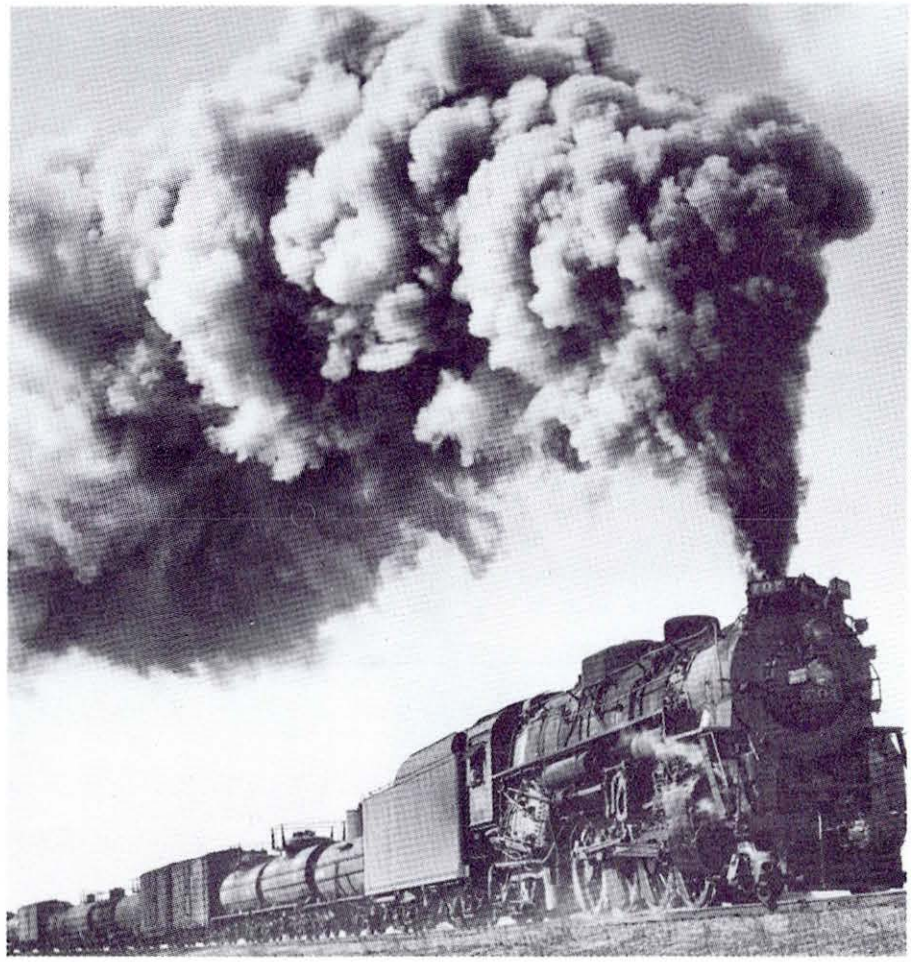
PORTRAIT OF THE RAILS, by Don Ball, Jr. One would think there would be no more room on the bookshelf for even one additional volume devoted to railroad photography. Not so. Portrait of the Rails, just published, is handsome, high-priced, and worth while. A little like Santa Fe used to say about the Super Chief, "Extra fare, and worth it."

In the days when Don Ball started toting his camera around the country, there were more than 50,000 steam locomotives in service. Not too many were alike. They pulled all sorts of trains in all kinds of geography in all kinds of weather. Thus the opportunity for the photographer who was at the right place at the right time—and that took more effort than luck—was limitless, and rewarding.

"Portrait" is not all nostalgia. There are outstanding photographs of the people who make the trains run in their best environment—in the roundhouses and on the engines they stabled.

The transition to diesel is skillfully covered by early day photographs and their accompanying captions. Captions, by the way, are the only text except for the author's prefaces to six separate chapters, plus an introduction by David P. Morgan. *Price: $19.95; 304 pages; 330 illustrations; 10 x 11¼ inches; hardbound; New York Graphic Society Ltd., Greenwich, Connecticut 06830.*

—Robert G. Lewis



WESTCHESTER'S FORGOTTEN RAILWAY, AN ACCOUNT OF THE NEW YORK, WESTCHESTER AND BOSTON RAILWAY COMPANY, by Roger Arcara. This book, which first appeared as two separate publications in 1962 and 1964, has been expanded and includes interesting new material about the now-abandoned New York, Westchester & Boston. It is must reading for the serious student of transport in that it offers many insights into the reasons why railroads succeed or fail.

The company and its affiliates were acquired for the interest of the New Haven Railroad in 1906. Construction was begun in earnest during 1909 with major segments being opened to traffic throughout 1912. The last section was opened in 1929, a scant eight years before the entire railroad was abandoned.

Contemporary accounts of the construction of the railroad are reproduced from Railway Age Gazette and Electric Railway Journal. These articles are supplemented by many additional photographs which indicate clearly the high standards to which this railroad was constructed and maintained. It was primarily a passenger railroad which failed in its basic mission, that of delivering the rider to his or her ultimate destination. Its trains failed to gain entry to Manhattan.

The only segment of this railroad which has survived is the part lying within the city of New York's Bronx Borough. It was acquired by the city in 1941 and incorporated into the municipal rapid transit system. Ironically, the parallel Penn Central Harlem and New Haven lines are now being upgraded to the former Westchester's standards under the aegis of the Metropolitan Transportation Authority, 36 years after the NYW&B was abandoned. *Price: $5.95; 136 pages; Quadrant Press, 19 West 44th St., New York, N.Y. 10036.*

—Seymour Kashin

THE DEATH OF THE AUTOMOBILE, by John Jerome. Who's better qualified to write an acidic, scathing commentary on the automobile industry than a former ad-man for Chevrolet and managing editor of Car and Driver magazine?

John Jerome is that enigmatical figure who finds himself suddenly (one almost suspects shockingly) disenchanted with the true object of his dreams. In this case, the American automobile is the object of his love affair and, at the same time, the subject of his diatribe.

"In the Golden Era," he writes, "it was an over-size, over-weight, over-powered, under-braked, under-tired, dangerously fast. . .hideously complex, over-decorated, under-engineered, resolutely ordinary, badly assembled, twenty-foot, four-thousand pound, front-engine, rear-drive *thing.* It was very American."

Needless to say, what's good for John Jerome is not necessarily too good for Detroit. If you want to curl up with a humorously written, but sharply worded, attack on the nation's major polluter, try this. It's a gas. *Price: $6.95; 288 pages; W.W. Norton & Co., 55 Fifth Ave., New York, N.Y. 10003.*

—Ronald Fry

The French connection

(Continued from page 17)

feet long. The power cars are 86½ feet long. Seating capacity is 280, with space for an additional 24 passengers in the bar-grill in the center coach.

Each RTG power car has an operator's cab, engine room which can be bypassed by a side passageway, baggage compartment, 48-seat passenger compartment, toilet and vestibule. The first-class trailer car has twin passenger compartments, each with 30 seats, separated by a glass partition. Each compartment has ten double reclining chairs and ten single reclining chairs on the opposite side of the aisle. All seats have retracting tables in the armrests. Floors are carpeted.

The 80-passenger second-class trailer is divided into two compartments with double reclining seats on both sides of a center aisle. Passenger compartments are finished in the same manner as the first-class car. This scheme is carried through the 48-seat second-class compartments in each power car and in the 44-seat portion of the bar-grill trailer. The bar grill has seats for 24 at tables with provision for cafeteria-type service and a small food-preparation area.

The 1,140-hp Turmo III traction turbine in each power car drives both axles of the lead truck through a Voith hydraulic transmission and cardan shafts. This prime mover has a two-stage compressor, two-stage power turbine and two-stage free turbine. The smaller turbo-alternator unit is installed beside the traction turbine.

● **Suspension.** Trucks on power cars and trailers are of generally similar design. The roller-bearing journal boxes are carried under articulated arms secured to the truck frame and have a rubber-sandwich and coil-spring suspension over each box. The carbody suspension consists of a pair of long-travel rubber and coil-steel springs extending to the body side sills and providing vertical and lateral ride characteristics while also permitting truck rotation. Hydraulic shock absorbers are installed in parallel with these springs. The spring installation allows for eventual application of a hydraulically actuated "active" suspension which would tilt the carbody to counteract insufficient superelevation on curves.

The power trucks have tread braking. Trailers are fitted with a combination of tread and disc braking. The Voith transmission allows for hydrodynamic braking and this is supplemented by electromagnetic track brakes on the trucks of both the power cars and the trailers. ■

Lines on Labor

GUS WELTY

GOING THROUGH A PHASE. . .

Ever since the Administration announced Phase 3 of its wage/price control program—which is being referred to in some quarters as Phase 0—just about everybody who will be involved in collective-bargaining problems this year (and that's a lot of people) has been wondering about a couple of things: (1) When will the other shoe drop? and (2) is there really another shoe? The Administration hasn't answered either question, except for a rather definite warning based upon rather indefinite conditions—to the effect that anybody who gets 'way out of line on wages or prices will open himself up to getting clobbered. So, well and good. In the more permissive Phase 3 atmosphere, the Administration—and management and labor as well—may be better off for keeping it vague as to what "out of line" means or what "clobbered" may consist of.

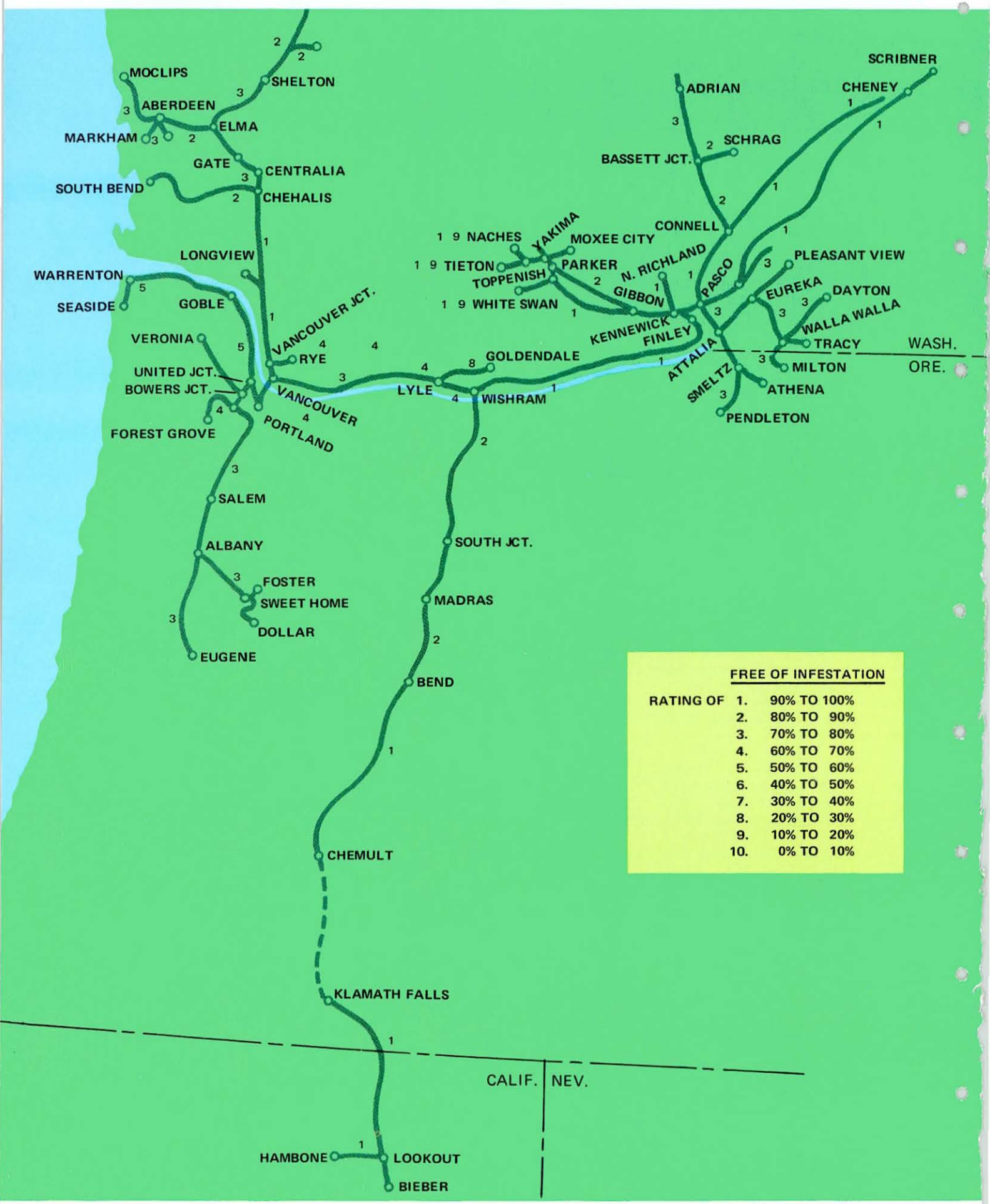
. . .AND WONDERING WHERE YOU'LL COME OUT

Among the concerned, it seems probable that very few people are finding much encouragement in the union demands for 1973 which have been made known thus far—which, as it happens, consist in large part of railroad union demands. To be sure, the situation—even on the surface—isn't all bad. The unions *are* putting in for wage boosts far in excess of 5.5%, if that can still be considered as a guideline, and some of them *are* going for benefit boosts which would take "far in excess" and turn it into "far, far in excess." On the other hand, it should be remembered that these are initial demands. Traditionally, initial demands are sort of like moon-shots. And, while NASA made it, labor's initial demands usually don't bear much resemblance to what comes out in the contract eventually written. Then, too, maybe something positive ought to be said about at least one union's demands—those of the United Transportation Union: True, UTU wants a hefty pay boost—but it is *not* also shooting for a benefit/rules package. And finally, there might be something to be said for the fact that while the Section 6 notices now on file were obviously written before Phase 3 was announced, nobody—yet, at least—has been trying to pull back the notices and substitute stiffer ones.

REALISTICALLY, WHAT ARE THE CHANCES FOR PEACE?

It is not just the rhetoric of a Pollyanna to say that both rail management and rail labor would hope to come through '73 with settlement and without confrontation. Both sides seem to know that something good has been started, over the past couple of years. Both sides now have a record of accomplishment to look back on. Both sides may even be getting away from the considering of problems as "my side and your side"—in the realization that if there are any solutions to mutual problems, they are solutions mutually arrived-at.

Of course, the management/labor approach to the Railroad Retirement problem is inevitably and inextricably tied to just about every other bargaining problem in '73 and maybe beyond. And of course, government will be eavesdropping, peering through the keyhole and otherwise monitoring what goes on in railroad bargaining and elsewhere. Of course, rail management and labor will make peace? Of course not "of course." But hopefully.


MOCLIPS
SHELTON
ABERDEEN
ELMA
MARKHAM
GATE
CENTRALIA
SOUTH BEND
CHEHALIS
LONGVIEW
WARRENTON
SEASIDE
GOBLE
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VERONIA
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PORTLAND
FOREST GROVE
SALEM
ALBANY
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DOLLAR
EUGENE
LYLE
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WISHRAM
SOUTH JCT.
MADRAS
BEND
CHEMULT
KLAMATH FALLS
HAMBONE
LOOKOUT
BIEBER
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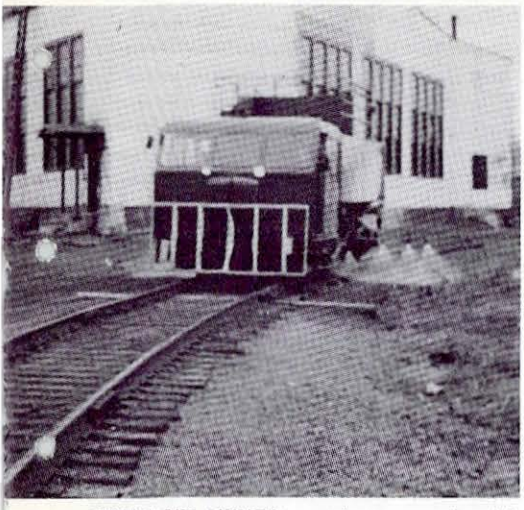
FINLEY
WALLA WALLA
ATTALIA
TRACY
WASH.
ORE.
MILTON
SMELTZ
ATHENA
PENDLETON
FREE OF INFESTATION
RATING OF 1. 90% TO 100%
2. 80% TO 90%
3. 70% TO 80%
4. 60% TO 70%
5. 50% TO 60%
6. 40% TO 50%
7. 30% TO 40%
8. 20% TO 30%
9. 10% TO 20%
10. 0% TO 10%

How BN uses a numbers system to control weeds



COMPANY-OWNED weed spray unit with capacity of 5,000 gallons sprays track section at Klamath Falls, Ore.

AIM ON BN is for weed-free ballast sections on most tracks.

MANAGEMENT is given a quick picture of the vegetation problem by numbers indicating the degree of infestation, as shown on this map of BN's Portland Region.

How does a company meet a challenge in vegetation control that encompasses the fertile lands of Illinois, Missouri, Iowa and Nebraska, and semi-arid lands and mountain areas of Wyoming, Montana and Idaho, and the verdant coastal lands of Washington, Oregon and California? Or connecting lines to the provinces of British Columbia, Saskatchewan and Manitoba in Canada?

This was the challenge that faced engineering officers of Burlington Northern following creation of that 26,000-mile system in 1970.

Each of the component roads had its own chemical vegetation control system which had evolved from years of experience and which best met the individual situations. It was determined that the first requirement would be an entirely new concept in planning and programming. The basis of that new concept is the use of numbers to designate the degree to which vegetation has infested the track section or right-of-way.

No one person was familiar with the procedures used by the various roads to control vegetation or with existing conditions on the new property. It was necessary, therefore, that past procedures and established programs be followed in the first year after merger. During this period, general conditions were examined. Past programs and procedures were discussed with all concerned, including maintenance supervisors and chemical manufacturers.

● **Manual compiled.** To direct a common approach, BN assembled and distributed a "Chemical Vegetation Control Manual" which was prepared as a temporary publication subject to revision.

A chapter on "general information" outlined basic goals. It specified that applications of chemicals would be carried out by presently-owned rail-bound spray-car equipment and contracted on/off-track truck-spraying equipment; that general applications for noxious weed control and spot treatment of brush growths would be carried out by assigned maintenance forces using small portable company-owned spray units, and that contracted applications would be utilized in special treatments.

A chapter on "general procedures" stated that all annual programs would be founded on recommendations submitted by each of the railroad's regions from information supplied by the divisions. All recommendations would be based upon, and substantiated by, standard reporting forms such as "Existing vegetation conditions—Track section," and "Existing vegetation conditions—Noxious weeds and brush." These reports would become the foundation for the future of chemical vegetation control on the BN. They would, in effect, become the basis for "vegetation control by the numbers."

● **Numbers system explained.** Vegetation control by numbers involves use of a numerical rating system in which the numerals 1 to 10 represent the degree of control existing as of September 1 each year. Each district roadmaster, utilizing the "existing condition" report form, rates each mile of roadbed. The rating of (1) indicates that within the spray pattern applied, the area is 90% to 100% free of infestation. A rating of (2) indicates 80% to 90%, (3) 70% to 80%, etc. This procedure is used to rate the growth of noxious weeds and brush on the right of way.

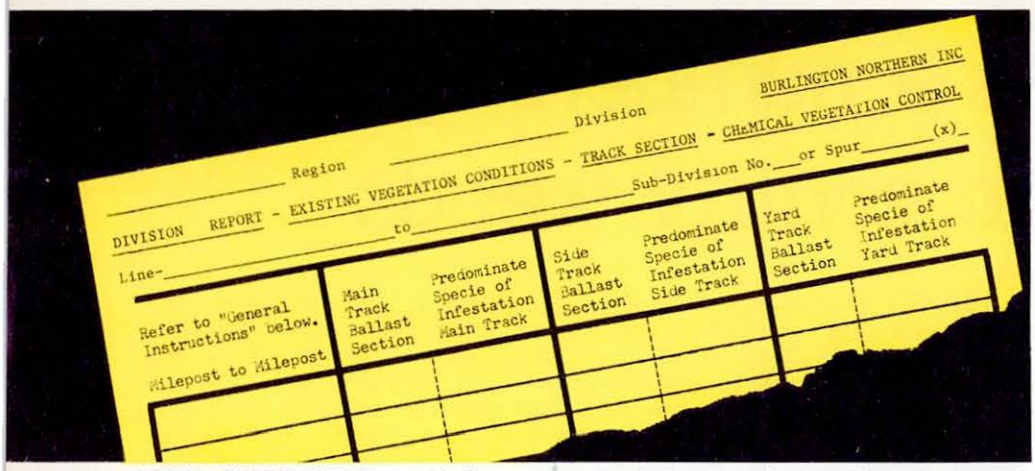
If similar conditions exist for additional adjoining miles, the reported milepost location will show the total limits. Each mile need not be reported. The report provides space for rating sidings, house, industry, and yard tracks on the same basis. Space was provided to show the predominant species within each area for future use in planning special treatments.

As in all railroad operations, there is no one more familiar with track or right-of-way conditions than the man on the ground who must meet these conditions every day. Therefore, his recommendations, substantiated by the number rating, are the basis of BN's chemical vegetation-control programs.

● **How system works.** The question may be asked, "Why a numerical rating system?" Answers a BN spokesman: "What other system could reflect conditions and substantiate expenditures without extensive details?" How does the number system work? Consider a subdivision of 100 miles in length which contains:

64 miles	(1) rating =	64 points
31 miles	(2) rating =	62 points
3 miles	(4) rating =	12 points
2 miles	(8) rating =	16 points
100 miles		154 points

The total of 154 points divided by



BURLINGTON NORTHERN INC

Region _____ Division _____

DIVISION REPORT - EXISTING VEGETATION CONDITIONS - TRACK SECTION - CHEMICAL VEGETATION CONTROL

Line- _____ to _____ Sub-Division No. ___ or Spur _____ (x) _

Refer to "General Instructions" below. Milepost to Milepost	Main Track Ballast Section	Predominate Specie of Infestation Main Track	Side Track Ballast Section	Predominate Specie of Infestation Side Track	Yard Track Ballast Section	Predominate Specie of Infestation Yard Track

LOCAL SUPERVISORS use this form to report existing vegetation conditions in the track section on their territories in late summer. The degree of infestation is indicated by the numbers system. In making their reports on the effectiveness of weed-control efforts the district and division roadmasters also make recommendations for next year's program.

the total length, 100 miles, results in an average rating of 1.54 for the subdivision. This figure, plus the amount and type of resistant plant species, provides a guide for future consideration of special treatment on an economical basis. When the average ratings are superimposed on a map of the system they reflect the existing conditions to all concerned from the division level to top management. When two or more years are compared, progress or failure of the vegetation-control programs will be apparent.

As a check system on these established "ratings," all chemical manufacturers and supplier-applicators are expected to inspect territories where their products or services are utilized. Results of these inspections are reported on a standard form. Color photographs accompany the reports.

● **Regional seminars held.** Convinced that good communications in any operation are as important as the basic planning and programming, BN conducted regional seminars in its six regions. To broaden the scope of material to be presented, basic chemical manufacturers and chemical suppliers and/or applicators were invited to assist in preparing and presenting a four-hour session on such subjects as: The history of railroad vegetation control; survey and planning for vegetation-control programs; herbicides, their properties, how they work, factors affecting results obtained; how to manage vegetation control and use it as a maintenance tool; better living through a better environment; new developments, test programs, recommendations; herbicide applications; and chemical and mechanical brush control—the problem and control.

Slides and charts were used throughout presentation of these subjects. Brochures from various manufacturers were distributed to all present as well as to maintenance supervisors unable to attend because of other responsibilities. In addition, the engineering department purchased and distributed to regional and division track-maintenance supervisors a copy of a state-prepared weed-identification manual to assist in identifying specific infestations.

During the afternoon portion of the one-day seminar, regional programs and problems were discussed in a question-and-answer session. When asked if the seminar was successful, one engineering representative stated: "Without a doubt it was one of the most satisfying experiences of my railroad career." As a whole, those in attendance projected a desire to learn more about the subject. Their questions indicated a profound interest and desire to improve these operations.

Has the program been a success? "On a major portion of the system," answers a BN spokesman, "the treatments, under existing conditions, have produced favorable results. They are not all we wished for, but we have not reached the end of the capabilities of the chemicals available today, or of those involved in the supply and application of these materials.

"In weed control BN has come a long way since March 1970. The contracted application of dry pelletized chemical by mechanical equipment, mounted on on/off-track trucks, has produced outstanding results under and around bridge structures. Liquid chemical combinations, again applied by on/off-track truck sprayers in constructing brakeshoe fireguards along the shoulder portion of the roadbed, have significantly reduced right-of-way fires resulting from brakeshoe sparks. The experimental application of liquid chemicals on woodchip deposits along main tracks has been highly successful to date in eliminating right-of-way fires.

"However, there are problems. Resistant species are always a problem. Nature spends 24 hours each day to produce vegetation growths under ever-changing climatic conditions. In addition, there must be constant awareness of the environment while continuing to meet restrictions, regulations and laws governing the use and applications of chemical compounds.

"And, last, but by no sense of the imagination least, there are people problems. Normally, weed control consists of one-shot applications, and as Murphy's Law states: 'If something can go wrong, it will.' Daily logs and summary reports must be improved, as well as reports of existing conditions, but through continued cooperation of those involved, chemical vegetation control by the numbers will provide the desired results for Burlington Northern."

● **The equipment used.** For spraying the roadbed on main lines BN uses company-owned spray trains operated under supervision of a supplier-applicator. This practice has the advantage, says a company spokesman, of having the operations under the supervision of a licensed and experienced man capable of changing the proportion of wettable powders instead of being confined to pre-mixed chemicals. The policy also assures that spray work will be in charge of a man with experience in preparing a log of the operations. This requires reporting weather conditions, spray patterns used, gallonage applied per mile and information on car numbers and train and engine-crew members.

Roadbed spraying on branch lines and in yards and terminals is performed under contract by on/off-track truck sprayers. The dry chemical used at bridges is also applied by equipment of this type. It is also used in spraying for fire guards.

● **Building the budget.** Preparation of the annual vegetation-control program on BN begins with reports of the district roadmasters, which are made to the division roadmaster. These not only provide a guide to the effectiveness of weed-control activities but contain the roadmasters' recommendations for the next year's program. The recommendations, as later revised by the division roadmaster and the regional manager of engineering, go to the headquarters office in St. Paul. The recommendations are stated in terms of the amount of chemical required. At St. Paul, the amounts, converted into dollars, are consolidated by regions. Adjustments are made to conform to the budget forecast. The recommended program for a given year is completed about December 31 and is ready for presentation to management for approval in January.

BN engineering management is alert for situations where application of chemicals to the roadbed section in alternate years may be justified. "In this way," says a spokesman, "we can take advantages of good results from past applications, thereby providing money for more troublesome areas." ■

Third Quarter Figures of Calendar Year 1972

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Operating Revenues: Freight	Operating Revenues: Other	Operating Revenues: Total 1972	Operating Revenues: Total 1971	Operating Expenses: Maint. of Roadway and Structures: Total 1972	Operating Expenses: Maint. of Roadway and Structures: Total 1971	Operating Expenses: Maint. of Roadway and Structures: Deprec. and Retirements	Operating Expenses: Maint. of Equipment: Total 1972	Operating Expenses: Maint. of Equipment: Total 1971	Operating Expenses: Maint. of Equipment: Deprec. and Retirements	Operating Expenses: Traffic	Operating Expenses: Transportation	Operating Expenses: Total 1972	Operating Expenses: Total 1971	Operating ratio: 1972	Operating ratio: 1971	Railway tax accruals	Railway operating income: 1972	Railway operating income: 1971	Net income: 1972	Net income: 1971
Akron, Canton &	3 mos.	1,927	68	1,995	1,805	291	325	18	385	451	125	91	821	1,744	1,829	87.4	101.3	237	14	–250	–5	–194
Youngstown	9 mos.	5,441	170	5,612	5,553	880	1,159	63	1,115	1,261	375	271	2,310	5,026	5,311	89.6	95.7	694	–108	–430	52	–67
Amtrak	3 mos.	–	48,084	48,084	41,442	1,193	1,865	–	12,973	16,783	–750	4,603	30,195	64,778	65,539	134.7	158.1	4,134	–20,828	–27,886	–22,452	–28,499
	9 mos.	–	112,514	112,514	64,087	3,868	2,900	–	45,791	27,959	2,512	13,694	93,997	211,268	107,764	172.4	168.1	12,814	–101,569	–49,824	–106,999	–51,155
Ann Arbor	3 mos.	2,612	162	2,774	2,769	395	710	23	700	531	161	50	1,332	2,605	2,802	93.9	101.2	205	–35	–238	–473	–579
	9 mos.	7,966	343	8,310	7,910	1,108	1,285	71	1,866	1,540	487	171	4,256	7,753	7,492	93.3	94.7	622	–66	189	–1,484	–1,361
Atchison, Topeka	3 mos.	204,708	8,732	213,440	193,658	34,644	29,390	5,187	39,466	37,184	10,846	4,547	73,165	160,992	144,554	75.43	74.64	21,356	31,092	28,359	24,242	–32,486
& Santa Fe	9 mos.	586,623	26,310	612,933	583,957	98,053	89,341	11,151	121,853	115,416	32,401	14,210	215,658	477,609	452,943	77.92	77.56	58,488	76,836	75,546	58,250	2,254
Baltimore & Ohio	3 mos.	118,950	5,204	124,154	123,784	16,700	16,000	2,085	16,880	20,382	2,918	2,780	46,344	89,832	93,121	72.3	75.2	8,339	25,983	21,866	4,273	857
	9 mos.	355,857	12,647	368,504	386,950	49,600	49,200	5,747	50,205	63,501	8,865	8,189	138,588	270,333	289,603	73.4	74.8	26,804	71,366	70,119	11,896	8,800
Bangor & Aroostook	3 mos.	2,625	181	2,806	2,530	789	702	147	1,333	1,061	1,253	85	996	3,453	2,847	123.1	112.5	49	–697	–583	3	76
	9 mos.	9,645	493	10,139	9,522	2,750	2,595	295	3,884	3,212	4,120	247	3,301	10,957	9,792	108.1	102.1	969	–1,787	–1,170	1,303	834
Bessemer & Lake	3 mos.	11,594	979	12,574	14,820	2,512	1,418	160	2,627	2,240	534	159	3,001	9,442	8,232	75.1	55.5	1,761	1,371	3,256	1,560	3,058
Erie	9 mos.	31,755	2,557	34,313	39,436	6,130	3,998	444	8,915	6,940	1,583	512	8,769	27,529	23,840	80.2	60.5	3,956	2,827	8,097	2,838	7,470
Boston & Maine	3 mos.	15,176	3,049	18,225	19,382	3,078	2,719	446	3,074	3,119	599	406	9,128	16,824	15,480	92.3	79.9	1,602	–201	2,376	–3,069	–502
	9 mos.	48,051	9,430	57,470	57,627	10,545	8,715	1,449	9,709	10,133	1,817	1,170	26,907	51,539	48,390	89.7	84.0	4,757	1,174	4,659	–6,858	–4,405
Burlington Northern	3 mos.	241,721	10,783	252,504	245,176	44,408	40,339	4,122	43,836	37,463	11,209	6,276	102,075	211,903	192,740	83.9	78.6	28,384	17,217	31,292	6,306	–55,468
	9 mos.	703,569	31,781	735,350	701,861	118,925	108,295	14,667	131,139	122,932	33,888	18,647	298,024	611,502	576,337	83.2	82.1	65,992	57,855	64,070	23,295	–42,977
CPR Lines in Maine	3 mos.	2,161	131	2,291	1,156	556	404	65	296	245	47	65	782	1,773	1,580	77.4	136.7	103	415	–515	–	–
	9 mos.	6,592	307	6,899	5,018	1,467	1,166	195	1,259	1,092	141	193	2,397	5,704	5,134	82.7	102.3	292	902	–380	–	–
Central of Georgia	3 mos.	19,333	566	19,899	14,461	3,270	2,928	563	3,193	2,849	962	392	5,565	13,316	11,545	69.9	79.8	2,501	4,083	1,405	2,823	518
	9 mos.	59,216	1,580	60,795	51,071	10,132	9,599	1,390	9,435	8,459	2,880	1,155	16,906	40,328	36,634	66.3	71.7	8,259	12,208	7,625	8,526	4,465
Central R.R. of	3 mos.	6,618	3,020	9,639	11,989	1,230	1,638	183	1,771	1,963	267	213	5,143	9,251	10,610	96.0	88.5	1,003	–615	199	–2,307	–2,012
New Jersey	9 mos.	22,754	8,842	31,596	39,653	4,048	4,809	668	5,892	6,258	851	626	16,831	30,295	32,112	95.9	81.0	3,068	–1,768	4,190	–7,465	–2,204
Central Vermont	3 mos.	2,460	74	2,534	2,297	597	397	72	143	190	–9	24	1,060	1,929	1,667	76.1	72.5	209	396	453	173	128
	9 mos.	7,170	317	7,487	6,925	1,613	1,411	163	560	613	41	75	3,126	5,629	5,155	75.1	74.1	598	1,259	1,239	736	1,049
Chesapeake & Ohio	3 mos.	101,969	5,246	107,215	113,629	12,600	15,200	1,552	19,877	27,180	6,263	2,481	42,307	83,980	95,248	78.3	83.8	9,906	13,329	11,818	8,903	1,521
	9 mos.	324,556	12,793	337,349	364,069	42,600	47,200	4,629	60,037	75,509	18,754	7,286	127,398	258,659	286,554	76.7	78.7	31,648	47,041	47,204	28,881	22,339
Chicago & Eastern	3 mos.	9,283	160	9,443	9,286	1,961	2,087	82	1,727	1,515	373	301	928	7,291	7,335	77.2	79.0	749	1,404	1,285	385	475
Illinois	9 mos.	29,134	453	29,588	26,228	5,984	5,274	266	5,406	4,892	1,102	2,848	9,221	22,850	21,109	77.2	80.5	2,353	4,385	3,757	1,439	1,294
Chicago & North	3 mos.	81,850	9,658	91,488	–	12,168	–	540	12,827	–	3,140	2,136	38,123	70,194	–	76.7	–	6,931	14,383	–	3,286	–
Western*	9 mos.	108,153	12,994	121,148	–	17,231	–	564	17,056	–	4,157	2,884	50,437	93,670	–	77.3	–	9,311	18,167	–	3,673	–
Chicago, Milwaukee,	3 mos.	72,255	5,463	77,718	76,026	15,377	14,228	1,527	12,708	11,958	2,990	2,256	32,618	67,661	62,429	87.1	82.1	6,823	3,234	7,151	–4,524	–2,515
St. Paul & Pacific	9 mos.	215,064	15,150	230,214	220,052	41,808	36,705	4,772	39,072	36,532	9,053	6,449	95,853	197,063	181,897	85.6	82.7	20,062	13,069	18,999	–8,987	–7,990
Chicago, Rock Island	3 mos.	72,769	4,382	77,151	73,938	10,664	9,376	1,176	13,177	13,029	1,606	2,005	30,555	60,383	56,998	78.3	77.1	5,228	11,540	11,930	431	–556
& Pacific	9 mos.	215,204	12,952	228,157	219,766	32,669	30,897	4,595	40,909	39,859	4,886	6,169	92,150	183,593	176,893	80.5	80.5	16,023	28,541	27,591	–4,549	–8,458
Clinchfield	3 mos.	10,272	109	10,381	9,967	1,192	1,251	90	1,662	1,902	649	277	2,964	6,431	6,605	61.9	66.3	838	3,113	2,531	–	–
	9 mos.	30,400	252	30,653	29,316	3,349	3,344	252	5,120	4,943	1,959	851	8,394	18,736	18,244	61.1	62.2	2,472	9,445	8,582	–	–
Colorado &	3 mos.	6,633	227	6,860	6,379	816	647	43	968	883	478	20	2,706	4,868	4,082	71.0	64.0	340	1,652	1,641	1,025	805
Southern	9 mos.	19,373	533	19,906	17,604	2,047	1,768	128	2,909	2,668	1,244	58	7,098	13,253	11,348	66.6	64.5	1,361	5,293	4,187	3,316	2,256
Delaware & Hudson	3 mos.	9,853	269	10,122	10,678	1,054	1,595	146	2,021	1,801	395	294	3,994	7,939	8,649	78.4	81.0	1,505	678	553	99	–424
	9 mos.	30,186	671	30,857	34,190	3,689	4,620	395	6,585	6,938	1,189	938	12,169	25,324	28,024	82.1	82.0	4,530	1,002	1,747	–1,894	–796
Denver & Rio Grande	3 mos.	27,732	1,060	28,793	30,326	3,273	3,500	398	4,369	4,223	1,426	964	9,282	19,557	19,310	67.9	63.7	4,589	4,647	5,912	4,302	4,032
Western	9 mos.	80,664	2,164	82,827	83,385	9,711	9,252	1,551	12,884	12,710	4,162	2,933	26,190	56,671	54,495	68.4	65.4	13,166	12,991	14,221	12,562	11,271
Detroit & Toledo	2 mos.	1,871	122	1,994	1,812	208	207	15	326	319	116	84	623	1,376	1,326	69.0	73.2	310	308	250	220	162
Shore Line	9 mos.	5,762	362	6,123	5,878	649	613	48	994	963	348	225	1,914	4,187	4,013	68.4	68.3	987	949	967	568	610

*C&NW became employee-owned on June 1, 1972. Hence, no comparisons are made with figures for the preceding year. Also, C&NW cumulative figures above are only for the period since June 1, 1972.

(Continued on next page)

Third Quarter Figures of Calendar Year 1972

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

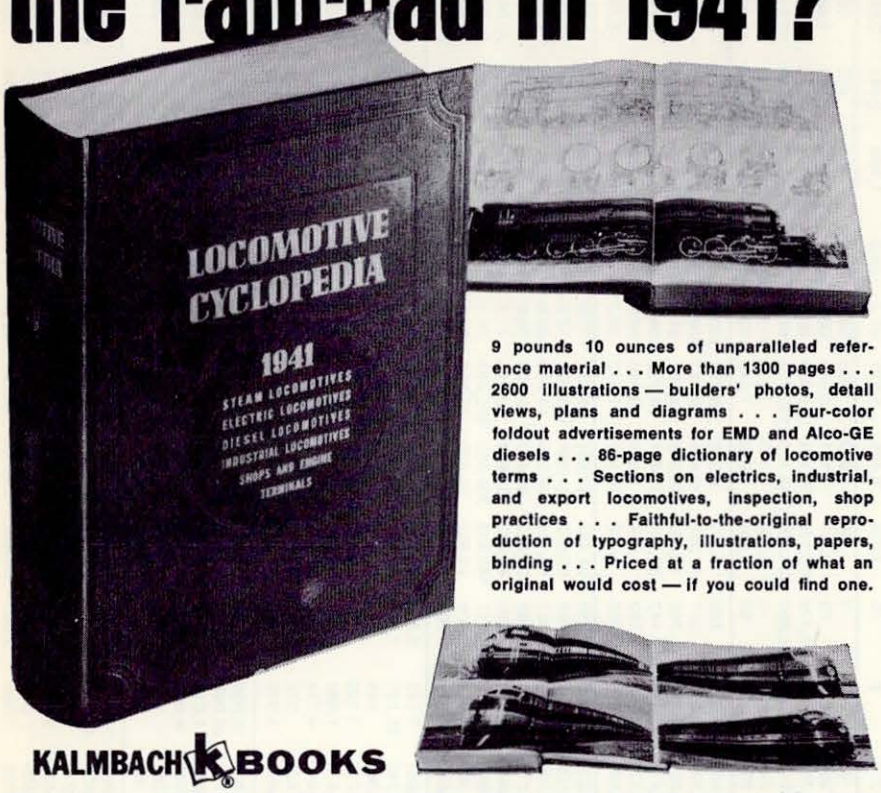
Name of Road		Operating Revenues				Operating Expenses												Railway tax accruals	Railway operating income		Net income	
						Maint. of Roadway and Structures			Maint. of Equipment							Operating ratio						
		Freight	Other	Total 1972	Total 1971	Total 1972	Total 1971	Deprec. and Retirements	Total 1972	Total 1971	Deprec. and Retirements	Traffic	Transportation	Total 1972	Total 1971	1972	1971		1972	1971	1972	1971
Detroit Toledo & Ironton	3 mos.	9,379	362	9,741	9,128	1,091	941	86	1,723	1,769	441	277	3,721	7,459	6,896	76.6	75.5	780	1,501	1,509	393	500
	9 mos.	29,784	760	30,544	27,670	3,087	2,667	277	5,372	5.576	1,303	819	11,292	22,531	20,568	73.8	74.3	2,238	5,774	4,936	2,404	1,904
Duluth, Missabe & Iron Range	3 mos.	16,896	1,807	18,703	17,256	1,867	1,657	273	1,257	981	502	64	3,885	8,756	7,970	46.8	46.2	6,089	3,858	3,852	4,201	4,418
	9 mos.	33,405	3,254	36,659	37,524	5,239	4,665	1,142	5,299	4,955	1,630	201	9,525	23,656	22,330	64.5	59.5	9,009	3,995	5,506	5,077	7,356
Duluth, Winnipeg & Pacific	3 mos.	2,927	25	2,952	2,709	745	410	16	300	262	2,441	66	1,103	2,283	1,786	77.3	65.9	308	361	724	232	422
	9 mos.	9,602	111	9,713	8,090	1,560	1,076	47	906	687	7,324	198	3,245	6,117	4,927	63.0	60.9	919	2,677	1,996	2,045	1,158
Elgin, Joliet & Eastern	3 mos.	11,409	6,055	17,464	13,330	1,944	1,599	137	2,994	2,027	563	235	6,647	13,866	10,978	79.4	82.4	2,342	1,255	788	1,068	694
	9 mos.	35,635	17,503	53,139	51,230	5,259	4,180	405	8,401	6,668	1,672	702	19,676	40,041	37,107	75.3	72.4	7,608	5,490	6,422	4,490	5,035
Erie Lackawanna	3 mos.	54,978	8,137	63,115	65,786	7,217	7,846	796	1,145	11,537	1,833	1,388	31,005	54,394	53,163	86.2	80.8	5,662	3,059	7,406	−5,959	−1,753
	9 mos.	173,182	22,333	195,515	203,529	21,313	20,969	2,489	34,018	33,908	5,435	4,237	93,838	164,068	159,288	83.9	78.3	16,605	14,861	28,292	−18.720	71
Florida East Coast	3 mos.	8,181	242	8,422	7,193	1,569	1,695	224	830	949	237	233	2,067	5,171	5,070	61.4	70.5	1,542	1,709	1,204	981	256
	9 mos.	26,832	745	27,587	24,668	7,014	7,672	613	2,703	2,837	613	689	6,275	18,106	18,151	65.6	73.6	3,557	5,924	4,295	3,140	1,564
Fort Worth & Denver	3 mos.	5,076	206	5,273	5,633	940	786	129	857	792	112	76	2,738	5,010	4,653	95.0	82.6	394	−131	787	−1,227	−491
	9 mos.	17,011	476	17,487	17,830	2,790	2,328	370	2,364	2,006	348	215	8,014	14,581	13,319	83.4	74.7	1,141	1,765	3,298	−1,526	237
Georgia Railroad	3 mos.	2,707	89	2,796	3,223	390	489	26	455	443	94	113	1,133	2,239	2,253	80.1	69.9	158	399	835	–	–
	9 mos.	8,133	261	8,394	9,677	1,164	1,293	82	1,283	1,202	287	343	3,295	6,516	6,549	77.6	67.7	470	1,408	2,674	–	–
Grand Trunk Western	3 mos.	18,934	560	19,524	19,683	3,482	3,524	230	3,039	3,267	141	518	10,924	19,581	19,485	100.3	99.0	2,177	−2,235	−1,781	−6,342	−6,330
	9 mos.	63,622	2,298	65,920	63,881	9,095	9,611	716	9,927	10,239	423	1,525	32,943	58,472	58,375	88.7	91.4	6,403	1,046	−584	−10,988	−14,996
Green Bay & Western	3 mos.	1,882	118	2,000	2,053	440	393	22	273	241	152	136	711	1,708	1,640	85.41	79.89	185	106	169	–	–
	9 mos.	5,528	275	5,803	6,038	982	838	68	872	755	159	416	2,133	4,858	4,494	83.70	74.32	485	461	716	−11	384
Illinois Central Gulf	3 mos.	108,272	15,495	114,926	113,887	17,523	16,913	2,162	20,338	21,547	5,281	3,461	45,145	93,687	88,316	81.5	77.5	10,028	11,210	16,654	3,605	3,669
	9 mos.	339,612	20,505	360,117	347,653	55,634	49,492	6,506	64,858	63,651	15,794	10,526	131,910	283,754	266,403	78.8	76.6	32,296	44,066	49,041	21,611	26,987
Illinois Terminal	3 mos.	2,614	421	3,035	2,996	370	361	10	440	418	96	96	1,150	2,313	2,217	76.2	74.0	235	487	467	147	126
	9 mos.	8,026	1,184	9,210	9,394	1,185	1,046	55	1,348	1,259	267	294	3,458	7,052	6,593	76.6	70.2	662	1,496	2,039	620	1,074
Kansas City Southern	3 mos.	25,252	1,238	26,490	25,511	4,837	3,757	246	4,555	4,039	1,219	908	8,832	20,467	18,449	77.3	72.3	2,260	3,762	4,953	1,623	1,655
	9 mos.	75,202	3,721	78,923	76,989	11,994	9,554	866	12,631	12,121	3,640	2,774	26,072	57,358	53,893	72.7	70.0	6,943	14,622	16,157	5,746	6,410
Lake Superior & Ishpeming	3 mos.	1,495	597	2,092	1,946	272	271	61	440	363	181	7	612	1,471	1,335	70.3	68.6	180	441	322	499	402
	9 mos.	2,547	1,239	3,787	4,195	806	824	185	1,252	1,065	544	24	1,442	3,900	3,716	103.0	88.6	503	−616	−100	−311	239
Lehigh Valley	3 mos.	12,426	539	12,964	11,330	1,341	1,390	369	2,770	2,069	368	420	5,936	11,473	9,906	88.5	87.4	1,137	354	477	−4,941	−1,392
	9 mos.	35,639	1,246	36,885	35,145	5,464	4,560	1,308	8,071	6,686	1,127	1,231	16,948	34,707	31,218	94.1	88.8	3,255	−1,077	901	−11,344	−5,115
Long Island	3 mos.	2,370	23,729	26,098	24,324	4,898	5,047	285	8,211	7,592	1,092	152	18,702	36,606	35,030	140.0	144.0	1,857	−12,365	−12,382	−14,728	−14,550
	9 mos.	7,039	70,181	77,220	71,903	14,685	13,850	848	24,500	22,236	3,487	434	55,255	108,628	97,873	140.6	136.1	5,507	−36,915	−31,255	−43,482	−37,464
Louisville & Nashville	3 mos.	111,324	2,952	114,275	113,801	15,397	18,144	1,480	22,976	21,436	7,921	2,357	42,726	89,336	87,997	78.2	77.3	8,948	15,991	17,276	8,179	8,211
	9 mos.	331,782	8,292	340,074	333,383	45,957	52,782	4,350	68,104	65,241	23,709	7,210	126,832	265,909	263,702	78.2	79.1	24,765	49,400	47,059	20,613	8,728
Maine Central	3 mos.	6,858	132	6,990	7,005	1,616	1,405	93	1,522	1,393	290	129	2,510	6,207	5,697	88.8	81.3	569	214	784	−150	400
	9 mos.	20,720	382	21,102	21,760	4,813	4,199	273	4,669	4,467	860	398	7,651	18,858	17,737	89.4	81.5	1,635	610	2,483	−138	1,428
Missouri-Illinois	3 mos.	1,786	26	1,812	1,788	528	441	16	674	731	340	54	411	1,755	1,667	96.8	93.3	397	−340	−274	484	468
	9 mos.	5,680	57	5,737	5,633	1,015	943	38	2,170	2,026	1,023	160	1,247	4,845	4,512	84.4	80.1	1,548	−656	−446	1,833	1,896
M-K-T Lines	3 mos.	18,328	648	18,976	18,460	2,308	2,779	617	2,276	2,254	327	900	7,333	13,733	13,599	72.4	73.7	1,462	3,781	3,501	−311	−560
	9 mos.	56,838	2,015	58,853	55,116	8,083	8,696	1,267	7,492	6,726	1,007	2,766	22,583	43,762	40,545	74.4	73.6	4,403	10,688	10,504	−1,533	−915
Missouri Pacific	3 mos.	107,792	4,040	111,832	106,790	17,410	15,855	1,779	19,463	18,956	4,225	2,582	40,867	85,161	79,128	76.2	74.1	7,336	19,334	21,016	4,319	3,883
	9 mos.	321,296	12,033	333,329	312,021	53,380	45,314	4,863	58,413	53,987	12,574	7,676	119,615	253,571	230,533	76.1	73.9	22,030	57,728	60,591	11,902	10,998
Monongahela	3 mos.	1,391	10	1,400	1,561	571	376	148	432	154	20	2	445	1,506	942	107.5	60.3	138	−244	611	−1,000	−242
	9 mos.	6,566	36	6,602	5,199	1,536	1,069	445	889	475	59	8	1,406	4,021	2,857	60.9	55.0	364	1,216	2,141	−41	−269

Third Quarter Figures of Calendar Year 1972

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Operating Revenues				Operating Expenses										Operating ratio		Railway tax accruals	Railway operating income		Net income	
						Maint. of Roadway and Structures			Maint. of Equipment													
		Freight	Other	Total 1972	Total 1971	Total 1972	Total 1971	Deprec. and Retirements	Total 1972	Total 1971	Deprec. and Retirements	Traffic	Transportation	Total 1972	Total 1971	1972	1971		1972	1971	1972	1971
Norfolk & Western	3 mos.	183,566	7,528	191,094	170,476	25,433	21,199	2,777	34,688	33,105	13,322	4,164	67,307	142,124	126,763	74.4	74.4	16,274	32,696	32,109	15,686	20,964
	9 mos.	570,071	22,235	592,306	569,528	67,722	64,461	8,252	106,034	102,431	39,864	12,498	204,775	422,191	402,169	71.3	70.6	54,563	115,551	112,953	6,485	51,896
Norfolk Southern	3 mos.	3,526	85	3,611	3,378	683	561	79	574	592	179	164	1,308	3,039	2,730	84.1	80.8	281	292	384	−36	141
	9 mos.	11,189	211	11,399	10,720	2,269	1,976	237	1,791	1,715	538	499	4,062	9,556	8,467	83.8	79.0	840	1,003	1,446	−71	528
Northwestern	3 mos.	3,446	11	3,456	3,353	848	826	70	176	72	2	25	1,072	2,236	1,952	64.7	58.2	436	784	1,153	501	786
Pacific	9 mos.	10,568	28	10,596	9,102	2,648	2,408	180	312	235	6	75	3,024	6,485	5,879	61.2	64.6	1,168	2,943	2,546	1,922	1,489
Oregon Electric	3 mos.	1,585	67	1,653	1,787	226	195	21	49	38	226	8	743	1,073	804	64.9	45.0	156	423	654	28	299
	9 mos.	4,866	280	5,146	4,984	670	696	58	137	208	671	23	2,171	3,131	2,560	60.8	51.4	649	1,366	1,693	349	531
Penn Central	3 mos.	391,206	52,721	443,928	430,186	61,846	66,120	7,765	76,520	77,760	13,825	5,170	210,538	372,194	373,957	88.8	86.9	34,521	37,213	19,827	−51,166	−67,575
	9 mos.	1,189,826	158,987	1,348,814	1,358,692	186,062	193,637	23,514	248,754	270,553	23,514	15,602	624,900	1,144,103	1,192,875	84.8	87.8	106,022	98,689	55,410	−175,994	−195,538
Penn-Reading	3 mos.	2,052	384	2,436	2,556	493	455	59	349	324	33	16	1,731	2,733	2,478	112.2	96.9	190	−488	−99	−1,256	−769
Seashore Lines	9 mos.	5,859	870	6,728	6,843	1,563	1,576	184	1,002	890	97	50	4,948	7,968	7,348	118.4	107.4	551	−1,790	−1,029	−3,863	−2,972
Pittsburgh &	3 mos.	9,526	397	9,923	9,080	1,534	1,361	141	3,734	3,588	1,636	188	3,772	9,932	9,119	100.1	100.4	797	−806	−2,028	2,379	2,145
Lake Erie	9 mos.	26,612	1,508	28,120	29,952	4,292	4,250	340	12,235	11,298	4,896	547	11,288	30,495	29,041	108.4	97.0	2,496	−4,871	−6,356	6,210	9,363
Reading	3 mos.	22,573	5,260	27,833	28,550	4,197	4,463	623	5,413	4,882	1,249	706	13,062	25,349	24,552	91.1	86.0	2,801	−317	1,174	−4,074	−3,548
	9 mos.	66,705	15,268	81,973	88,765	13,283	13,034	1,758	16,715	15,426	3,741	2,142	39,294	77,481	74,736	94.5	84.2	8,149	−3,617	5,780	−17,151	−4,603
Richmond, Fredericks-	3 mos.	5,482	372	5,854	6,071	752	677	131	782	936	243	102	1,444	3,440	3,340	58.8	55.0	1,202	1,212	1,269	4,593	1,267
burg & Potomac	9 mos.	17,561	1,089	18,624	19,533	2,308	2,182	369	2,372	2,580	739	316	4,363	10,481	11,472	56.3	58.7	4,149	3,995	3,758	8,159	4,141
St. Louis-San	3 mos.	53,581	2,000	55,581	52,724	8,614	7,270	698	8,957	8,829	2,491	1,755	21,487	43,834	39,937	78.9	75.7	4,146	7,602	9,049	2,096	2,283
Francisco	9 mos.	163,984	6,001	169,985	158,869	26,119	21,983	2,370	26,953	25,108	7,391	5,404	63,863	131,358	118,300	77.3	74.5	13,159	25,467	27,819	10,364	9,962
St. Louis South-	3 mos.	34,751	355	35,105	32,723	4,577	4,143	312	8,539	7,108	3,153	927	13,114	28,096	24,280	80.0	74.2	3,384	3,625	4,174	5,600	5,367
western	9 mos.	111,911	1,337	113,248	106,329	13,890	11,331	889	26,016	19,275	9,374	2,697	39,062	84,442	69,002	74.6	64.9	11,246	17,560	19,731	23,365	24,679
Seaboard Coast	3 mos.	130,053	4,098	134,151	126,094	20,172	18,785	1,504	25,568	22,662	6,554	2,999	48,843	103,680	93,043	77.3	73.8	10,581	19,889	23,060	7,932	7,150
Line	9 mos.	406,057	11,609	417,666	400,125	61,694	56,823	3,813	74,594	71,665	19,419	9,211	146,932	309,963	295,249	74.2	73.8	35,046	72,657	71,036	36,275	4,607
Soo Line	3 mos.	34,163	677	34,840	33,028	7,103	6,263	275	4,425	4,309	1,026	906	12,562	26,420	23,910	75.8	72.4	3,230	5,099	5,897	1,792	2,117
	9 mos.	99,721	2,348	102,069	92,088	17,375	15,510	980	13,430	12,602	3,021	2,703	37,131	74,973	67,185	73.5	73.0	10,056	17,040	15,678	7,242	6,195
Southern Railway	3 mos.	108,661	4,100	112,761	91,776	18,807	15,343	1,505	21,392	18,951	7,142	2,380	36,103	84,415	70,568	74.9	76.9	7,196	21,151	11,341	13,669	13,776
	9 mos.	340,891	11,617	352,508	312,525	57,737	46,975	4,464	63,505	56,740	21,131	7,952	106,407	251,608	221,841	71.4	71.0	30,697	70,202	55,057	47,126	41,175
Alabama Great	3 mos.	11,504	327	11,831	9,559	1,808	1,488	263	2,479	2,063	948	255	3,410	8,544	7,240	72.2	75.7	675	2,612	1,255	2,003	1,623
Southern	9 mos.	35,925	1,202	37,128	33,815	6,015	5,897	726	6,996	6,227	2,726	752	9,963	25,492	23,511	68.7	69.5	2,749	8,886	6,657	6,577	5,296
Cinn. New Orleans	3 mos.	16,907	628	17,535	14,145	2,143	1,756	199	3,756	3,474	1,584	370	4,851	11,970	10,433	68.3	73.8	1,749	3,817	2,127	2,323	1,834
& Texas Pacific	9 mos.	54,220	1,849	56,069	49,013	6,600	6,149	628	11,174	10,040	4,774	1,097	14,520	35,736	32,177	63.7	65.6	6,887	13,447	10,434	8,789	7,155
Georgia Southern	3 mos.	4,427	121	4,548	4,036	780	443	44	635	435	231	98	1,504	3,215	2,354	70.7	58.3	−138	1,471	1,310	307	507
& Florida	9 mos.	15,416	426	15,842	14,421	2,025	2,893	120	1,839	1,402	1,379	313	4,268	9,084	8,915	57.3	61.8	788	5,969	4,676	2,214	1,422
Southern Pacific	3 mos.	265,123	7,873	272,996	240,283	37,456	32,539	3,324	48,973	49,401	15,566	4,355	106,721	213,098	194,442	78.1	80.9	24,181	35,717	22,470	15,134	14,108
	9 mos.	808,789	19,984	828,772	759,491	112,747	99,351	9,194	155,598	151,111	46,098	12,927	312,345	640,845	593,750	77.3	78.2	70,965	116,962	98,856	61,534	59,737
Texas & Pacific	3 mos.	24,756	736	25,492	24,873	4,035	4,049	359	5,103	4,868	1,516	978	10,334	21,593	20,487	84.7	82.4	1,397	2,502	3,004	1,114	820
	9 mos.	76,541	2,818	79,358	76,965	12,381	11,205	1,074	15,332	14,049	4,500	2,995	30,718	64,747	60,572	81.6	78.7	4,912	9,700	11,360	4,788	5,108
Toledo, Peoria &	3 mos.	2,708	97	2,805	2,616	428	501	17	280	267	111	218	1,024	2,176	2,115	77.6	80.9	229	399	263	76	83
Western	9 mos.	8,266	344	8,610	8,089	1,169	1,362	47	838	784	246	672	3,071	6,423	6,180	74.6	76.4	809	1,377	1,129	479	486
Union Pacific	3 mos.	188,184	6,081	194,266	151,143	24,659	21,826	2,313	35,444	30,861	13,951	4,554	65,950	141,171	119,972	72.7	79.4	17,717	35,378	16,200	29,406	−53,802
	9 mos.	546,983	18,297	565,280	505,702	71,840	64,027	6,484	108,043	100,804	41,126	13,727	193,457	417,265	386,322	73.8	76.4	51,921	96,094	67,029	80,077	−2,223
Western Maryland	3 mos.	11,226	805	12,031	12,736	1,514	1,910	198	2,583	2,972	903	423	4,802	10,141	10,965	84.3	86.1	1,047	844	1,274	145	−534
	9 mos.	33,872	2,408	36,280	41,286	5,488	6,114	684	8,196	9,495	2,716	1,344	14,343	31,897	34,622	87.9	83.9	2,558	1,824	3,931	−383	268
Western Pacific	3 mos.	22,427	412	22,839	24,190	3,304	3,044	354	3,979	3,859	879	916	9,008	18,888	18,285	82.7	75.6	1,614	2,337	4,359	874	3,652
	9 mos.	62,461	2,272	64,732	62,903	9,569	8,939	971	11,283	10,926	2,689	2,667	24,928	53,482	50,228	82.6	79.8	4,746	6,504	7,998	2,694	2,934

Were you working on the railroad in 1941?



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LETTERS

Balanced transportation

Washington, D.C.

To the Editor:

Thank you for the kind words in the recent editorial in Railway Age.

I shall look back on my tour of duty with the Department of Transportation as a rewarding period in my lifetime of public and private service. My commitment to balanced transportation was dictated by urgent national needs, and it is very gratifying to find others share the same recognition of an important problem the country faces.

Continued success in your editorial efforts with a magazine we in the department respect for its good judgment.

John A. Volpe

Amtrak operations

Little Rock, Ark.

To the Editor:

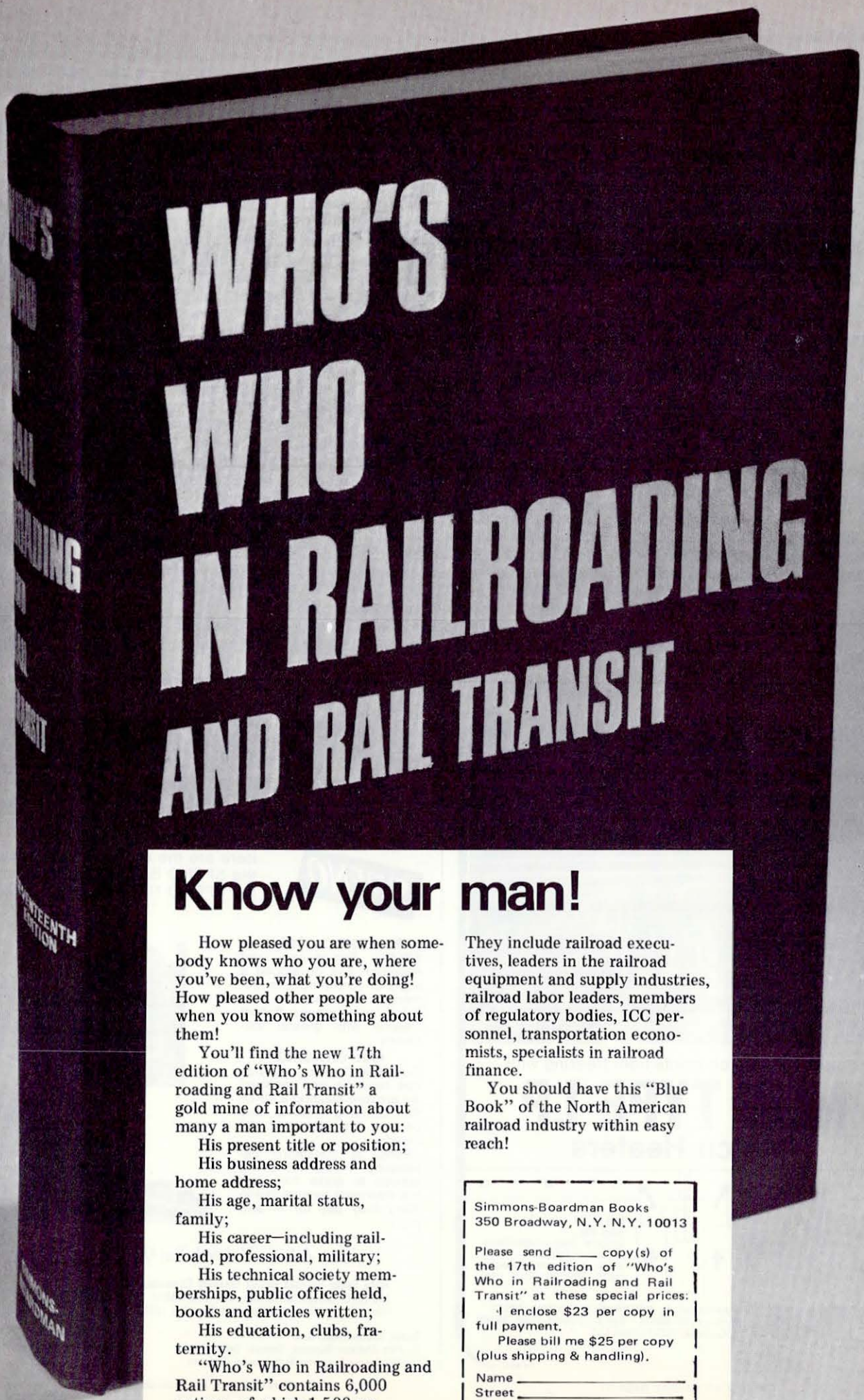
The question to Mr. Roger Lewis [RA, Jan. 8, p. 22] "are railroads cooperating?" is a little like asking the football coach, "how do you like tie games?" He replied, "it's like kissing your sister."

When Mr. Lewis makes his report to Congress this year as to Amtrak's needs and any proposed changes he would like to see in the Rail Passenger Service Act, I hope he will stop "kissing his sister. . ."

As far back as 1940 passenger trains covered the 279 miles from St. Louis to Kansas in 5 hours and made 10 stops. Just prior to Amtrak, 5 hours and 30 minutes with up to 12 stops was required. Maximum speed was 79 mph for passenger and 60 mph for freight trains. Between the DOT announcement of Amtrak routes in January 1971 and the time Amtrak took over the trains, the carrier, without any yet revealed reason, reduced this to 65 mph for passenger trains and left the 60 mph speed for freight trains. As a result for nearly two years, Amtrak trains require 5 hours and 45 minutes and make only four stops. In spite of this slow-down, revenues are up 140%, in face of 25% reduction in fares, and an 8.3% on-time record over the entire New York to Kansas City route. A schedule of 4 hours, which is what express bus service offers, making 4 stops and operating at a 79-mph maximum speed is possible. The railroad claims the line is in its best physical condition, with many miles of new heavy welded rails, both double and single track equipped with CTC, longer sidings, radio communication and other improvements.

Two other large western roads re-

(Continued on page 36)



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LETTERS

(Continued from page 34)

moved new high powered diesel locomotives and replaced them with 20-year-old, low-powered units soon after Amtrak began operation. This increased fuel and maintenance expense considerably. Of course who can blame the carriers, when they get a 5% override from Amtrak for cost.

These are only two of many well-known examples of the type of cooperation Amtrak has received from the carriers.

I am sure Amtrak VP's could write a book on this subject.

John A. Mills, Member
National Association of Railroad Passengers

Environment

Washington, D.C.

To the Editor:

Your story on our project on Ventilation and Environmental Control in subway rapid transit systems which appeared in your December 11, 1972 issue [p. 26] was excellent.

However, in reviewing the background of this project, you neglected to mention the early work done by the Southern California Rapid Transit District. Richard Gallagher, assistant general manager-engineering of the District, generated the initial momentum to get this project off the ground. It was he who foresaw the momentous problem facing subway designers as they began to plan new transit systems operating at higher train speeds with air-conditioned cars, air-conditioned stations and related needs for the improved environment of transit riders.

Robert M. Coultas
Executive Vice President
Institute for Rapid Transit

MTA cars

New York, N.Y.

To the Editor:

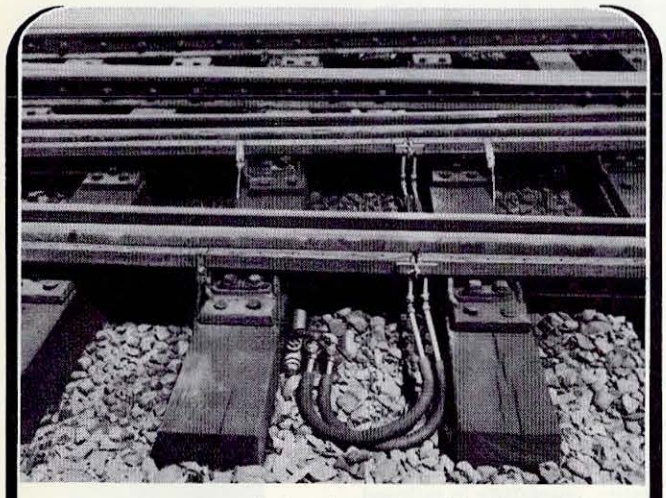
Your recent "Rail Transit/Commuter Car Market at a Glance" tabulation (Railway Age, January 8, 1973) left out mention of one of the Metropolitan Transportation Authority's more significant achievements during 1972, no doubt due to a printer's error.

The listing of cars delivered during 1972 should have included 58 M-1's built by GE/Budd and purchased by the MTA for service on the Penn Central's Hudson and Harlem Divisions. An additional 40 M-1's, also being built by GE/Budd and being purchased by our agency for use on the Penn Central's Westchester County lines, will be delivered this year. These cars should have been included in the listing of the undelivered backlog.

You did show 130 MU cars built by GE and purchased by SEPTA for Penn Central service as having been delivered in 1972. To my knowledge, these cars remain under construction at this time and should have been included instead in the undelivered backlog. Possibly this was the cause of the error involving our 98 M-1 cars for Penn Central service.

Where the long range outlook is concerned, I would like to add that the MTA anticipates purchasing approximately 500 air-conditioned 75-foot subway cars, in addition to the 300 R-44's now being placed into service and the 752 R-46's on order, for use on the Second Avenue subway and other new lines now under construction and due to be opened by 1980. In addition, beginning about 1975, we expect to start replacing our aging 51-foot IRT-type subway cars with new air-conditioned equipment at the rate of at least 200 cars per year.

William J. Ronan
Chairman & Chief Executive Officer
Metropolitan Transportation Authority



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PROGRESS REPORT

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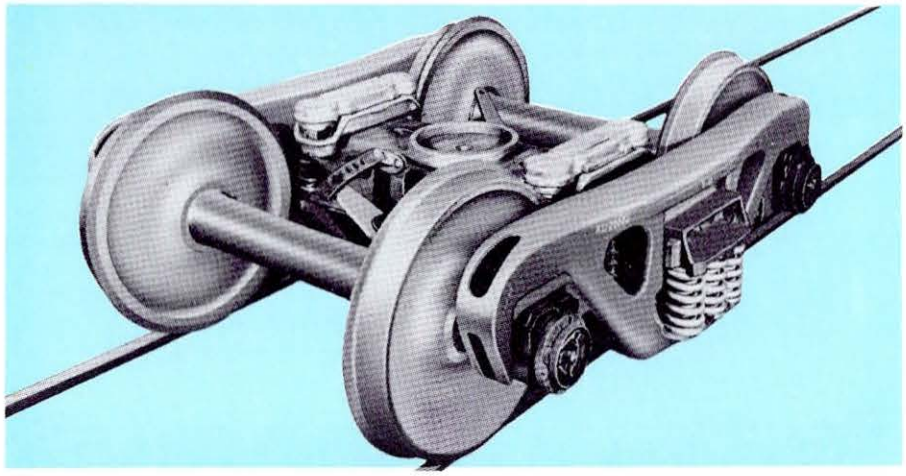
New Products Report



T-11 100-ton truck has new suspension

A new 100-ton freight car truck, developed over a three-year period at a cost of more than $1 million, was introduced in Chicago recently by American Steel Foundries, an operating unit of AMSTED Industries. Designated T-11, the new "suspension system" is, says Carl O. Sundberg, ASF president, "capable of high performance, safety, and greater life expectancy at any legal speed under today's railroad track conditions."

For those who are in the habit of saying: "When you've seen one truck, you've seen them all," there's a big surprise awaiting when they examine the T-11 for the first time. Subtle—but very significant—improvements have been made in several areas of the suspension system. The snubbing subsystem, for example, features several design changes which enable greater absorption and dissipation of the energy that develops in the truck as the result of track-train interaction. Important design changes also have been made in the T-11's bolster and side frames that resulted in an increase in the size of the spring envelope. This larger envelope makes it possible to use longer-travel coil springs which have 27% more reserve travel than conventional coil springs. Ultimately, says ASF, this results in a substantial reduction in the number of jarring shocks transmitted to the car body and the cargo during train make-up and operation.

Test track studies of the T-11 system indicate that the damaging effects of lateral shock to an unloaded car can be reduced by as much as 75% at speeds above 50 mph. Meanwhile, it can also reduce the damaging effects of vertical shock inside a loaded car by as much as 60%, says ASF.

ASF's Simplex side bearing, a controlled-friction device mounted on the truck bolster and used to reduce rock-and-roll as well as to control high-speed truck swiveling, is regarded as an integral part of the T-11 suspension system. Introduced in mid-1971 with application on ten 100-ton coal hoppers serving Pennsylvania Power & Light Co., the Simplex is also available for application to several designs of trucks other than the T-11.

The first test application of the variable-friction T-11 system was made in early 1971 after several months of component development and laboratory research. About six months later, 35 car-sets of the T-11 were applied to Ortner-built 100-ton unit-train coal hoppers serving Kansas City Power & Light Co. ASF plans to have the first mass-produced T-11s ready for delivery to the railroads and carbuilders by early spring this year.

The better riding qualities of the T-11 should result in longer life for such related truck components as side frames, bolsters, control elements, center plates, snubbing devices, springs and pedestals, says Sundberg. Aside from the battery of field tests conducted by ASF engineers during development of the T-11 suspension system, extensive component testing was performed in the firm's Granite City, Ill., test center. Playing an important role in the on-going fatigue testing of many T-11 components as well as other cast steel freight car parts is a new $300,000 fatigue testing machine developed by MTS Systems Corp. This machine, capable of exerting dynamic loads of up to 700,000 pounds, is recognized by many in the railroad research field as the most comprehen-

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sive and flexible research tool available in the industry today for fatigue testing. It is, in fact, expected to be an invaluable aid for some of the research projects which are being carried out on a national scale under the joint sponsorship of the railroad industry and suppliers of truck and coupler components.

Circle 60 on reader service card

Digital speed indicator is for locomotives and transit vehicles

A compact digital speed indicator for locomotives and rapid transit vehicles has been developed by Vapor Corp. The low-cost unit has been designed to provide the most advanced form of accurate and reliable speed indication while withstanding extreme conditions imposed by its rigorous electrical and physical environment, including a wide range of ambient temperatures. Single-package design permits fitting the indicator into existing space in the cab console. It can be mounted easily anywhere in the cab.

The indicator displays a speed up to 99 mph with two advanced numerical readout tubes to insure maximum reliability and readability. Speeds are displayed in simple, easy to read numerals of uniform brightness. A glare-free curved lens also enhances readability. Because there are no moving parts, there are no mechanical components to wear out or lose calibration, which reduces maintenance costs. Speed information is obtained from the Vapor end of axle pulse generator which, lubricated for life, needs no adjustments or brushes.

Circle 61 on reader service card

Solid state machines can print 20 columns of weighing data

Fairbanks Morse, a leading merchandiser of industrial weighing equipment, has developed several new models of a solid state printer, designated Electron II, which can print up to 20 columns of weighing information.

The new printer group joins a 9-column Electron I line of printers introduced earlier. These are the only industrial printers designed and produced by a scale manufacturer, says Fairbanks

Morse. As such they give the firm the capability of assuming responsibility for manufacturing—and servicing—the complete weighing system, including scale, indicator and printer.

Circle 62 on reader service card

All-diesel, carrier-mounted crane can lift 120,000 lb

The Ernest Holmes Co. has improved and strengthened its carrier-mounted railroad crane so it can lift 120,000-lb loads. The new, all-diesel, 60-ton unit—called Holmes RC-60—increases lift capacity by 20% so that locomotives and giant freight cars can be re-railed. RC-60 travels over the road at 55 mph or over spurs at 25 mph. Many railroads use the Holmes crane for shifting cargo, replacing damaged trucks, laying panel track and for heavy lifting in the yard.

Circle 63 on reader service card

New cable seal lock can't be pried or forced open

A one-piece cable seal lock is for protecting shipments in railroad cars, trailers and other enclosures. The lock, developed by E.J. Brooks Co., has, among other features, a positive, self-locking design making it impossible to pry or force the lock open. The one-piece construction permits positive seal and locking without need for crimping tools or hammer; two sizes allow greater flexibility and strength. Also, no sharp cable ends are exposed to endanger personnel; installation requires no tools.

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North American Car

Curtis C. Tatham, assistant vice president-marketing, **Pullman Transport Leasing Co.,** has been elected vice president-marketing.

Francis W. Kreidler has been named vice president-marketing, **North American Car Corp.,** Chicago. He was formerly director of cost engineering.

Fairbanks Morse has announced that its marketing concept for industrial weighing systems is being re-structured to enable "better positioning" in the marketplace. For example, field operations managers are being relocated at strategic regional points across the country, emphasis is being placed on marketing to industries rather than on the products themselves, and the servicing of weighing systems and their components is being given high priority. Rail car and truck axle weighing systems will receive special marketing attention under the new concept.

Thomas G. Swartzlander, market manager-bulk commodities and railroads, **North American Car Corp.,** has been appointed general manager, **Trailer Leasing Division.**

Establishment of a new division, called TransAd, with headquarters in Great Neck, N.Y., has been announced by **Industrial Advertising Associates, Inc.** TransAd offers a complete specialized service of advertising, marketing and design to all modes of transportation. The new division's personnel are geared to assist transportation management in planning total communications needs—advertising campaigns, brochures, marketing studies and corporate identification programs.

W. Blair Jones has been named senior sales representative, Mid-Atlantic District, Shippers Car Line Division, **ACF Industries,** at Pittsburgh. The district covers the western portions of New York, Pennsylvania and Maryland. Mr. Jones was formerly employed by **PPG Industries** as supervisor of fleet requisition and maintenance. **Ronald E. Riegler,** district sales manager, Western District, San Francisco, has been transferred to the Midwestern District, Chicago. **James O. Lawrence,** Shippers Car Line sales representative in Atlanta, succeeds Mr. Riegler in San Francisco, with the title of sales representative.

Louis T. Freed, vice president sales, **General Railway Signal Co.,** Rochester, N.Y., will serve as sales consultant from April 1 until his retirement on July 31. **Robert K. Wickliffe,** Chicago regional sales manager,

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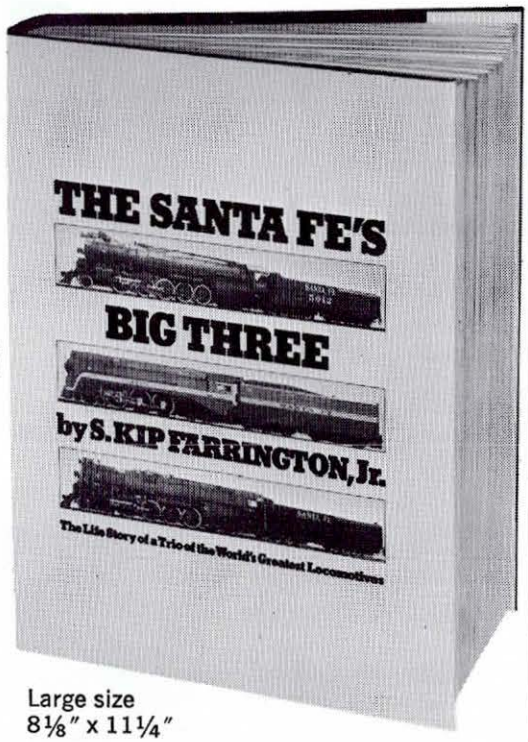

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appointed Rochester sales manager. **James W. Rafferty,** district manager, St. Louis, appointed regional sales manager at Chicago.

Sheldon Kaplan, president and chief operating officer, **Evans Products Co.,** has been appointed chief executive officer, replacing **Monford A. Orloff** in that capacity. Mr. Orloff will continue as chairman. **Richard E. Kent,** general counsel, elected vice president and general counsel. **Joseph A. Connolly,** director of personnel, has been elected vice president-personnel.

Lee H. Shils, director of engineering, **Thrall Car Manufacturing Co.,** has retired.

A. James Haygood has been appointed manager—railroad, marine and rapid transit sales, **Aluminum Co. of America,** Pittsburgh, succeeding **M. Lee Peterseim,** named assistant district manager, Los Angeles.

Donald W. Sicklesteel, president and general manager, **Koehring Co.,** Troy, Mich., has announced that the laboratory facilities of the Pegasus Division are being made available to manufacturers within the transportation industry for endurance testing of components and sub-assemblies.

James M. Reynolds, Jr., former system rate manager, **Chesapeake & Ohio,** has joined **R.L. Banks & Associates, Inc.,** Washington, D.C. as director of special projects.

Richard R. Forrest, eastern sales manager, **North American Car Corp.,** New York, has been named manager of the New York regional sales office. **Saul Wilf,** sales engineer, New York Office, has been appointed eastern district sales manager.

Frank Young has been appointed manager, computer applications, **Union Switch & Signal Division** of **WABCO,** Pittsburgh.

TRANSIT

Clair M. Roddewig has been elected acting chairman, **Chicago Transit Authority Board,** to replace the late **Michael Cafferty.** Mr. Roddewig has been a member of the board.

Herbert A. Thomas, Jr., has been appointed vice president-transportation, **Kaiser Engineers,** Oakland, Calif. He was formerly manager-transportation projects.

Henry L. Stuart has joined **URS/Coverdale & Colpitts, Inc.,** New York. Mr. Stuart was formerly associated with the **Metropolitan Atlanta Rapid Transit Authority** and served as its general manager from June 1966 to March 1972.

C.L. Wiksten former signal superintendent, **Chicago Transit Authority,** has been appointed chief engineer, train control and communications, **De Leuw, Cather & Company,** Chicago.

Edward W. Tobin has been appointed assistant to superintendent of stores, **Chicago Transit Authority.**

Richard W. Wilson has been named president of newly formed **Transit & Tunnel Consultants, Inc.,** Buffalo, NY. The company will plan, design and project management of advanced rapid transit systems in the United States. It has as associates **Hatch Associates, Ltd.,** Toronto, and **Mott, Hay & Anderson,** London.

Robert E. Carmack has been appointed to the Transit Sales Division, **R.C.A. Rubber Co.,** Akron, Ohio. He previously was office manager, Cost Accounting Department.

David G. Hammond will join **Daniel, Mann, Johnson & Mendenhall** on March 1 as vice president and transportation director, eastern regional office. Mr. Hammond has been chief engineer and assistant general manager, **Bay Area Rapid Transit District,** San Francisco, since 1964.

Ralph E. Jackson, senior transportation planner, has been appointed director of planning, **Denver Regional Transportation District.**

OBITUARY

Michael Cafferty, 48, chairman of the **Chicago Transit Authority,** and formerly deputy assistant secretary for urban systems and environment, U.S. Department of Transportation, died Jan. 17 after an illness of six months.

Walter J. Dundon, 82, retired general freight agent, **Santa Fe,** died Dec. 26 in Peace Memorial Home, Evergreen Park, Ill.

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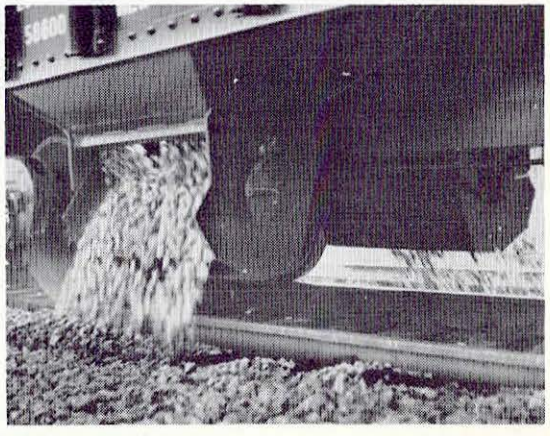


Circle 12 on coupon page 37

Market Outlook

CARLOADINGS

Loadings of revenue freight in the week ended Jan. 27 totaled 513,279 cars, according to the Association of American Railroads. This was a decrease of 2,824 cars, or 0.5%, compared with the previous week, and an increase of 44,959 cars, or 9.6% compared with the corresponding week last year. Ton-miles generated by carloadings in the week ended Jan. 27 are estimated at 16.0 billion, and increase of 13.7% above the corresponding week of 1972.

REVENUE FREIGHT CARLOADINGS

Commodity	Jan. 27 week	Jan. 20 week	Jan. 13 week
Grain	35,761	36,957	33,162
Farm products	15,277	17,516	13,695
Metallic ores	21,106	21,441	19,395
Coal	86,553	87,097	78,731
Crushed stone, gravel & sand	19,838	19,162	15,971
Nonmetallic minerals	9,767	9,356	8,758
Grain mill products	22,188	23,028	22,218
Food and kindred products	23,706	23,947	22,273
Primary forest products	24,926	24,704	19,196
Lumber & wood products (except furniture)	17,698	16,753	15,692
Pulp, paper & allied products	23,812	22,880	22,657
Chemicals & allied products	27,754	27,535	26,228
Petroleum products	10,831	11,127	10,550
Stone, clay & glass products	18,410	17,705	15,594
Coke	7,763	8,639	7,647
Metals & products	26,297	25,943	24,887
Motor vehicles & equipment	29,183	29,532	27,959
Waste & scrap materials	16,091	16,382	15,338
Forwarder & shipper assn. traffic	6,776	6,229	5,898
All other carloads	69,128	69,758	63,496
LCl traffic	414	371	352
Total cars loaded	513,279	516,062	469,697
Cumulative total, 4 weeks	1973 1,925,787		1972 1,827,525
Estimated revenue ton-miles (billions) 4 weeks	59.5		55.0

PIGGYBACK LOADINGS

U.S. piggyback loadings for the week ended Jan. 20 totaled 27,454 cars (23.0% above the corresponding week last year) and 46,904 trailers or containers (up 26.1% from 1972). Cumulative volume for the first 3 weeks of 1973 is 74,809 cars (up 15.7% from last year) and 128,037 trailers or containers (up 20.4% from 1972).

IN CANADA

10 days ending	Tons of Revenue Freight	Cumulative Totals
Dec. 31, 1972	4,667,053	212,385,876
Dec. 31, 1971	4,297,033	211,845,733

● *Freight-car orders and deliveries.* The following report has been received from the AAR and the ARCI:

DELIVERED

	Dec. 1972	12 mos. '72	12 mos. '71
Built new by carbuilders	3,830	42,063	47,990
Built new in R.R. shops	239	4,692	7,317
Built new—total	4,069	46,755	55,307
Rebuilt	285	2,538	5,587
TOTAL DELIVERED	**4,354**	**49,293**	**60,894**

ORDERED

To be built new by carbuilders	4,708	42,343	46,913
To be built new in R.R. shops	17	5,572	5,569
To be built new—total	4,725	47,915	52,482
To be rebuilt	0	2,465	4,988
TOTAL ORDERED	**4,725**	**50,380**	**57,470**

ON ORDER AND UNDELIVERED

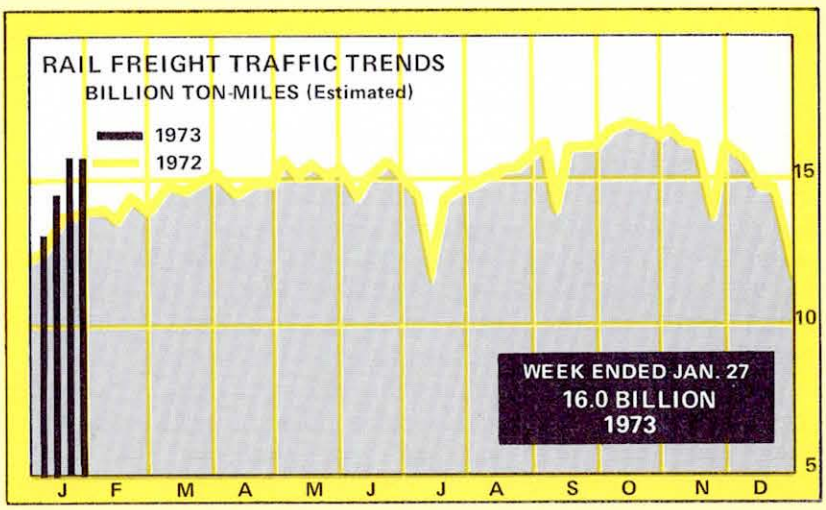
	Jan. 1, 1973	Dec. 1, 1972	Jan. 1, 1972
To be built new by carbuilders	17,666	17,314	18,753
To be built new by R.R. shops	3,578	3,800	3,468
To be built new—total	21,244	21,114	22,221
To be rebuilt	1,590	1,875	1,786
TOTAL ON ORDER	**22,834**	**22,989**	**24,007**

● *Chicago & North Western.*—Ordered 500 100-ton, 4,750-cu-ft-capacity covered hopper cars from Pullman-Standard at a cost exceeding $8.5 million.

● *Louisville & Nashville.*—Ordered 200 covered hopper cars from ACF and 100 box cars for movement of major appliances from Pullman-Standard. L&N will also order 100 50-ft general-service box cars and 50 60-ft high-roof box cars for movement of pulpwood and will acquire 172 bi-level and 63 tri-level racks for installation on TTX flat cars.

● *Santa Fe.*—Ordered 1,000 100-ton covered hopper cars from ACF at a cost of approximately $18 million.

● *Southern.*—Will invest nearly $150 million in capital improvements in 1973, an all-time record. About $90.7 million will go for 60 new locomotives and 3,750 new and rebuilt freight cars; $47 million is earmarked for roadway and structures improvements, including signaling and communications. The remainder of about $12 million will go for various projects.



Source: Association of American Railroads

Moving People

BART MOVES ALONG AS CRITICS CARP

Bay Area Rapid Transit opened a second segment of its 75-mile system Jan. 29—the 10-mile section extending from MacArthur station in Oakland through Berkeley, Albany, and El Cerito to Richmond. The 28-mile Fremont section opened last Sept. 6. On Jan. 30 BART handled 1,315 commuters between 6 a.m. and 9 a.m. on the Richmond line; and on the same day handled a record 3,203 commuters on the Fremont line. (In addition to commuters, both lines are handling thousands of off-peak riders, many of them sightseers.) The festivities surrounding the new-line opening were clouded by the resignation of BART's No. 2 man, David G. Hammond, chief engineer and assistant general manager; Hammond is joining the eastern regional office of Daniel, Mann, Johnson & Mendenhall. The Oakland Tribune reported that Hammond had written to General Manager Bill Stokes that he had had "a bellyful of negative carping critics," adding: "If I can focus attention on the point that BART's future, yes survival, depends on enhancing, rather than hampering, the great capabilities of its highly competent key people by allowing them to complete the tasks remaining, I will feel that this difficult decision to accept other employment is the correct one." In an editorial headed, "It's not BART Riders Who Are Complaining," the Oakland Tribune commented that "on the whole, BART is proving itself magnificently," and observed: "Most complaints. . .seem to emanate from San Francisco which has yet to hear its first BART train whistle, or Sacramento, which isn't likely to see its first rapid transit train in this century."

NO FARE HIKE YET FOR ICG

Illinois Central Gulf is asking for a sharp increase in commuter fares. As expected, the Illinois Commerce Commission has suspended the proposed increases pending hearings. ICG's proposal calls for boosts of 25% on monthly tickets, an average of 18% more on 25-ride tickets and 5% more on one-way and roundtrip tickets. Such increases would bring an 18.7% jump in revenues, assuming no loss of riders, and would cut ICG's commuter-service deficit by about 50%. Commuter operations lost about $3.2 million last year—or, to put it another way, commuter operations are costing about $1.29 for every dollar of revenue coming in. And ICG had this to say to its 30,000 weekday commuters: Rising costs and regulatory delays "pushed ICG to a point in 1972 where some men in the railroad's top management seriously advocated filing to abandon the entire commuter operation. Such a move could yet be a possibility if there are lengthy legal delays because a large loss will remain and new wage demands already have been announced by the unions." Meanwhile, two other Chicago-area commuter lines—Rock Island and Milwaukee Road—were also coming in for fare increases. In each case, the proposal was for a 10% boost.

CTA OUTLINES ITS SERVICE-CUT PLANS

Most dollar savings in deficit-plagued Chicago Transit Authority's service-reduction program (RA, Jan. 8, p. 46) will come from elimination of bus routes—but rapid-transit service will also feel the knife. CTA expects to save $2,150,000 by dropping the Evanston Express service, along with night-and-Sunday service on a branch line and Saturday operation of its Loop Shuttle; by closing 23 rapid-transit stations on seven lines; and by closing auxiliary entrances to eight stations on five lines. Savings on bus service are estimated at $9.7 million, mostly from elimination of 18 bus routes. Target dates for the cost-cutting—along with imposition of a 5-cent fare boost—are a bit uncertain, because CTA has been waiting to see what kind of government aid, if any, may be forthcoming. The city has agreed to use $10 million in motor fuel tax funds for CTA support—but made it contingent upon the state also coming through.

ATLANTA WILL STUDY HONOR SYSTEM

Will the honor system of rapid-transit fare collection work in Atlanta? The Metropolitan Atlanta Rapid Transit Authority wants to find out. A six-month, $124,000 study will evaluate the no-barrier (honor) system, the barrier system, and a "convertible" system. While it has yet to gain a toehold in the U.S., the honor system is gaining acceptance in Europe. The advantages of such a system are obvious: it precludes the installation of costly fare-collection equipment, and it also eases traffic flows. A potential disadvantage is equally obvious: loss of revenues. Hamburg, Germany, has reported success with the honor system. Passengers validate their own tickets in simple, platform-area machines that stamp the time and place a journey begins. Riders are spot-checked, and cheaters are heavily fined on the spot. Hamburg has reported a 1% cheat factor; but the loss of revenues, in that city's experience, has been more than offset by savings in equipment installation and maintenance. Atlanta officials point out that their choice of a collection system will have "tremendous influence on planning and final design of a system."

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Viewpoint

Busier rails will mean a cleaner America

Perhaps it was just a coincidence, an accident, a no-matter kind of thing. But it was mildly interesting that in the inaugural-address listing of the good things Americans should have, President Nixon got to ". . .better transportation, a better environment. . ." in that order.

Looking back at what has been happening in Washington and other government, you would never guess that "better transportation" could come ahead of "a better environment" in any listing. But, there it was. And maybe there were a few other people associated with the railroad industry who listened to that phrase in the address with a half-smile and a slight shudder—because (1) railroads by any study measurement known, are a low-polluting form of transportation, and (2) railroads, from all reports available, are spending huge amounts of money to make "low" go down to "lower" and they're doing it, for the most part, as a voluntary thing.

A short time ago, the general press came upon an old report and found it noteworthy to tell people that railroads had spent something like $65 million in the 1968-70 period on environmental-control programs. At about the same time, Railway Age was pointing out that such expenditures since 1970 were in the $250-million-to-$300-million range (RA, Dec. 11, 1972, p. 19). Now, a just-completed AAR survey shows that environmental-control expenditures in 1972 alone totaled almost $92 million—and even that is an incomplete figure: Many roads have not developed an environmental cost breakout and, as AAR puts it, "since many railroads indicate active programs for which costs are not reported, the true expenditures for 1972 would greatly exceed the total shown."

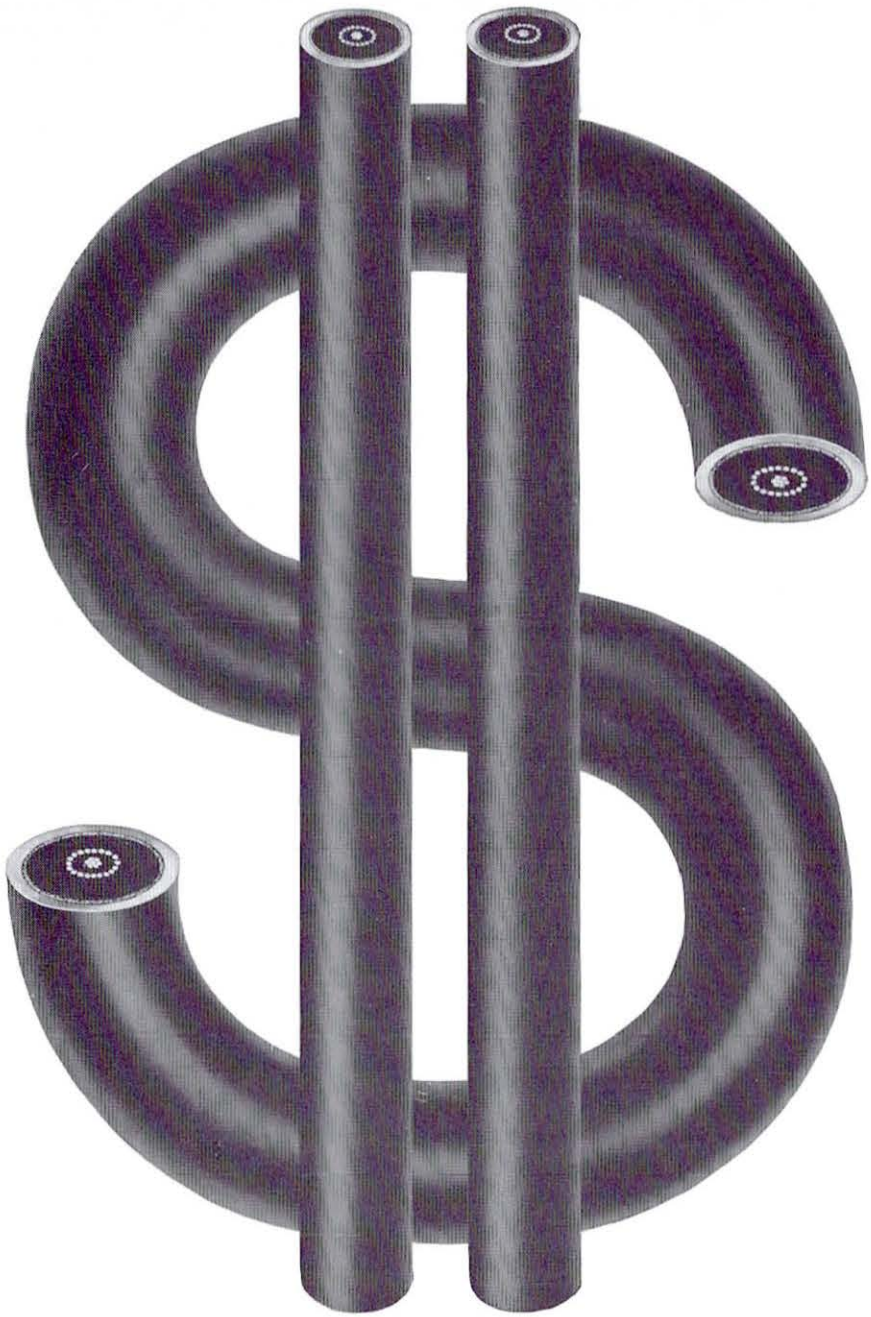
Several points might be made. One, perhaps closest to home, is that railroads had better get a better fix on exactly what they are spending for environmental protection and improvement. A second is that environmentalists had better back off and take another look at who does what and how, in the whole transportation field. A third is that government, if it is really concerned with environmental protection, might take the railroad record more into account in making those decisions which, one way or another, affect the distribution of traffic among modes.

In its early-1973 status report, AAR puts the transportation situation rather bluntly: "More progress can be made toward environmental improvement by shifting traffic to the railroads than by requiring major reductions in railroad emissions or effluents."

APPLIES TO MOVEMENT OF PEOPLE, TOO

Available evidence says AAR's point is valid, and the validity applies as well to rapid-transit movement of people in congested metropolitan areas as it does to movement of freight anywhere. For the work performed, the rail mode glunks-up the environment less. And yet railroads are under environmentalist attack no less than any other mode—and maybe more.

That, frankly, just doesn't make much sense. Perhaps this is because the environment has become a "cause"—and however innocent you may be, beware of somebody with a "cause." Perhaps also it's because the railroad/environment story hasn't been adequately told. And maybe not much can be done about that first "perhaps"—but something sure can be, and ought to be, done about the second one.



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